

Annex to:

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## **Annex A – Update of the literature searched for the systematic reviews on metabolic diseases and dental caries**

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## 1. Introduction

The original literature searches were conducted on 23 July 2018 for subquestion 4 (metabolic diseases) and on 24 and 25 July 2018 for subquestion 5 (dental caries).

The search strings used can be found in **Appendix A**.

Literature searches were updated on 28 and 31 August 2020 for subquestion 4 and on 13 and 16 October 2020 for subquestion 5 using the same search strings, with minimal adaptations to accommodate changes introduced in the setup of some databases.

After deduplication, in total, 6,581 records were identified for metabolic diseases and 1,024 for dental caries. These were imported into DistillerSR® Web-Based Systematic Review Software (Evidence Partners, Ottawa, Canada).

Title/abstract and full-text screening were done in duplicate by applying the same inclusion/exclusion criteria as in the original search. The flow charts for the selection of intervention and observational studies on metabolic diseases and dental caries in the literature search update are shown in **Appendix B**.

In total, 37 publications passed the full-text screening step for metabolic diseases. No new studies were eligible for dental caries.

## 2. Included studies

In total, five intervention studies and 32 observational studies investigating the relationship between dietary sugars and endpoints related to metabolic diseases met the inclusion criteria.

### 2.1. Intervention studies

The intervention studies assessed the effect of different amounts of added (or free) sugars, or total sugars, on several metabolic endpoints under specified dietary conditions. Comparisons were made between sucrose in beverages and non-caloric alternatives under hypercaloric conditions (Higgins and Mattes, 2019), between SSBs and non-caloric alternatives consumed *ad libitum* (Ebbeling et al., 2020), between honey (30 g/day) and no intervention in *ad libitum* conditions (Rashid et al., 2019), and between simple, refined and unrefined carbohydrates from the whole diet under neutral energy balance and controlled dietary conditions (Meng et al., 2018). In addition, one study investigated the effect of trehalose (3.3 g/day) vs. the same amount of sucrose (Yoshizane et al., 2020). The main characteristics of the studies and the results as reported by the authors are in **Appendix C**.

### 2.2. Observational studies

The exposure–endpoint relationships reported in the observational studies included are summarised in **Appendix D**. No new studies were found for any exposure of interest in relation to the incidence of NAFLD/NASH, hypertension, gout (disease endpoints in main standalone lines of evidence) or gestational diabetes mellitus (pregnancy endpoint).

## 3. Strategy to update the scientific opinion

This Annex provides a narrative description of the data on standalone and complementary LoEs provided by the 37 studies identified.

EFSA acknowledges that full incorporation of the new information into the scientific opinion would require the complete risk assessment process to be applied to the new studies, i.e.:

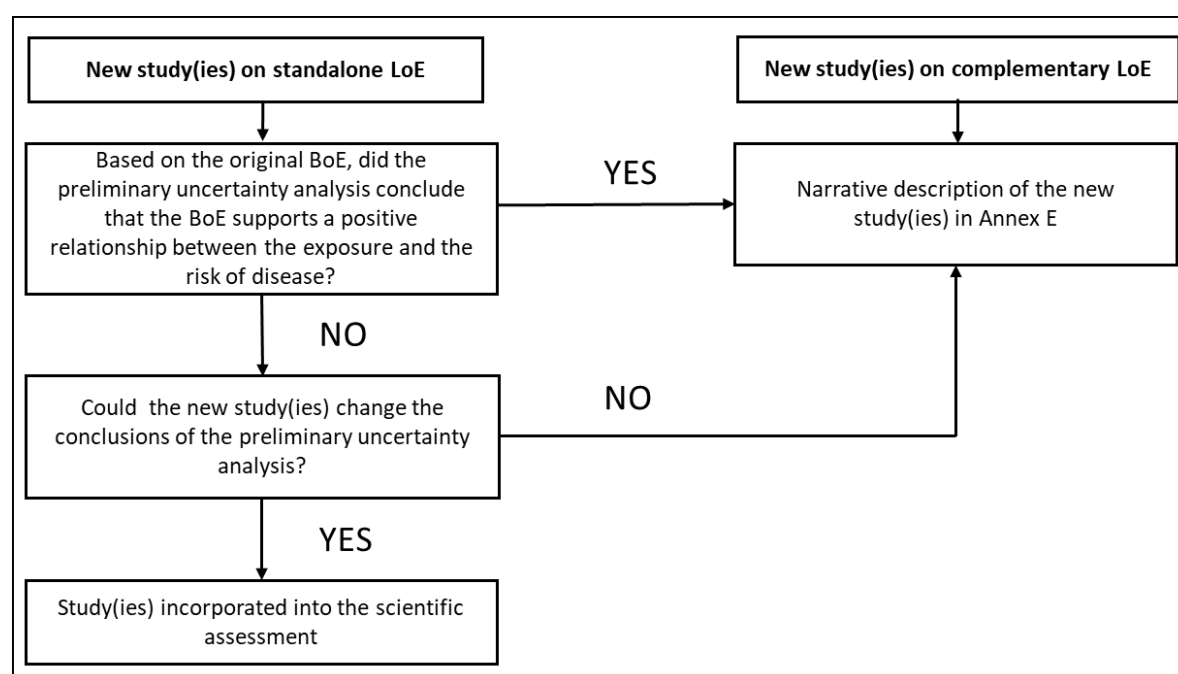
- data extraction,
- appraisal of the risk of bias,
- re-analysis of the data, when applicable,
- a revision of the uncertainty analyses and hazard identification conclusions for all exposure–endpoint relationships for which new studies were identified.

This approach is not possible within the time available to deliver the scientific opinion. Conversely, a new extension of the deadline will imply that the new literature search may become outdated by the time the scientific opinion is complete.

In consultation with the mandate requestor, the Panel decided to integrate into the scientific assessment new studies that met the three following criteria:

- Address exposure–disease risk relationships for which no support for a positive relationship between the exposure and the risk of disease was found in the original search at the hazard identification step.
- Address standalone LoEs (either disease or surrogate endpoints).
- Could change the conclusions of the preliminary uncertainty analysis conducted by the Panel on those LoEs at the hazard identification step.

The decisions taken by the Panel regarding the incorporation of the new studies into the scientific assessment are documented in this Annex A. The approach taken to incorporate the new studies into the scientific opinion is illustrated in **Figure 1**.



**Figure 1:** Decision-tree approach for new evidence identified through the update of the literature

#### 4. Narrative summary of the new studies identified through the updated literature search and decisions taken regarding their incorporation into the scientific assessment

##### 4.1. Intervention studies

The new randomised controlled trials (RCTs) identified address the effects of different doses of added (or free) sugars (Higgins and Mattes, 2019; Rashid et al., 2019; Ebbeling et al., 2020; Yoshizane et al., 2020), or total sugars in Meng et al. (2018), on body weight, fasting glucose, blood lipids, blood pressure and uric acid (**see Appendix C**). For all these endpoints, the Panel concluded, based on the original search, that the available evidence from RCTs supports a positive relationship between the intake of added (and free) sugars and the endpoint. No RCTs investigating different amounts of total sugars were identified in the original search. The study assessing the effect of trehalose vs. the same amount of

sucrose (Yoshizane et al., 2020) is not comparable with any other in the body of evidence (BoE). Therefore, these RCTs were not used to update the conclusions from RCTs on the relationship between added (and free) sugars, or total sugars, and risk of metabolic diseases.

Among the above-mentioned studies, two investigated SSBs (Higgins and Mattes, 2019; Ebbeling et al., 2020). As for added (and free) sugars, the Panel concluded, based on the original search, that the available evidence from RCTs supports a positive relationship between the intake of SSBs and the endpoints investigated in these studies except for risk of dyslipidaemia. Based on seven RCTs conducted with beverages, the Panel considered that the available BoE from the original search did not suggest a positive relationship between consumption of SSBs and adverse effects on blood lipids and noted that most studies were conducted *ad libitum* and therefore did not control for the lipid composition and content of the diet (see Section 8.6.4.1 of the opinion). In Ebbeling et al. (2020), consumption of SSBs (10%E) *ad libitum* for 1 year did not significantly change the blood lipid profile compared with ASBs. Similarly, in Higgins and Mattes (2019), hypercaloric SSBs (~25%E) consumption (i.e. only the SSBs arm in positive energy balance) for 12 weeks did not significantly alter the blood lipid profile compared with ASBs. Therefore, these RCTs are unlikely to change the conclusion reached by the Panel on the relationship between the intake of SSBs and risk of dyslipidaemia. Therefore, RCTs on SSBs were not used to update the conclusions from RCTs on the relationship between SSBs and risk of metabolic diseases.

## 4.2. Observational studies

**Appendix D** summarises the new references available for the exposures of interest in relation to the risk of disease by LoEs within the framework used in the scientific opinion for hazard identification.

The tables below summarise the number of studies retrieved by exposure, endpoint and LoE with both the original and the new literature searches.

### 4.2.1. Risk of obesity

#### 4.2.1.1. Total sugars

<b>sQ1.1. Total sugars and risk of obesity</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of obesity, incidence of abdominal obesity	0	0
<b>LoE2. Standalone (surrogate)</b>	Body weight/BMI, waist circumference	2	3
<b>LoE3. Complementary</b>	Body fat, abdominal fat	1	2

**LoE2. Standalone (surrogate). Body weight/BMI, waist circumference. PCs.** Two new PCs (Takayama, Yamakawa et al., 2020; Generation R, Nguyen et al., 2020) that assessed the relationship between the intake of total sugars and changes in body weight/BMI and/or waist circumference (WC) were identified. Both studies used the residual method to adjust for total energy intake (TEI), and therefore investigated total sugars in isocaloric exchange with other macronutrients. The Takayama study adjusted for baseline BMI. The Generation R study, conducted in children 1 year of age at recruitment, adjusted for maternal BMI 12 months post-partum as a proxy.

The Takayama cohort of adult Japanese men and females found no significant relationship between baseline intakes of total sugars (categorical analysis) and weight changes over the 10-year follow-up after adjustment for relevant covariates, including baseline BMI and TEI ( $P_{\text{trend}} = 0.155$  in males and  $= 0.907$  in females). In the first three quartiles of intake for males and in all quartiles of intake for females, mean body weight decreased over follow-up. Similarly, in the Generation R cohort of Dutch children, no significant relationship was found between the intake of total sugars at 1 year of age and changes in BMI z-scores between ages 1 and 10 years (0.002 SDS per each 10 g/day increase in total sugars intake; 95% CI:  $-0.01$  to  $0.01$ ). Similar results were observed for WC and fat mass index, a proxy of body fat (**LoE3. Complementary**).

Based on three PCs from the original search, the Panel concluded that the available BoE did not support a positive relationship between the intake of total sugars in isocaloric exchange with other macronutrients and risk of obesity. These studies were heterogenous in respect to the exposure–

endpoint relationship investigated, the direction of the relationship was inconsistent across genders in a study, and neither study showed a significant association between the intake of total sugars and BMI (or BMI z-scores) or WC. The Panel notes that these aspects also apply to the two additional PCs identified in the updated literature search. The Panel considers that these PCs would not change the conclusion of the preliminary uncertainty analysis, and therefore will not be incorporated into the scientific assessment.

#### 4.2.1.2. Added and/or free sugars

<b>sQ2.1. Added (and free) sugars and risk of obesity</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of obesity, incidence of abdominal obesity	0	0
<b>LoE2. Standalone (surrogate)</b>	Body weight/BMI, waist circumference	3	8
<b>LoE3. Complementary</b>	Body fat, abdominal fat	0	4

**LoE2. Standalone (surrogate). Body weight/BMI, waist circumference. PCs.** Three new PCs reporting on the relationship between the intake of added and/or free sugars and changes in body weight or BMI were identified (Takayama, Yamakawa et al., 2020; CARDIA, Yi et al., 2020; EPITeen, Marinho et al., 2020). In the Takayama study the nutrient residual method with further adjustment for TEI was used to investigate free sugars in isocaloric exchange with other macronutrients. The CARDIA cohort analysed added sugars as a categorical variable using the standard multivariable model for energy adjustment, whereas the EPITeen study used an energy partition model for continuous analysis to assess the full effect of free sugars (i.e. the energy and non-energy contribution of the nutrient while keeping energy intake from other nutrients constant). In both cases, the analysis allows for TEI to change as a function of added or free sugar consumption. Only the Takayama study adjusted for baseline BMI.

In the Takayama cohort there was a positive relationship between free sugars intake at baseline and weight changes over the 10-year follow-up in males (mean weight change/kg/10 years: 0.20; 95% CI: 0.13, 0.27 in the highest quartile of intake; median intake = 46.9 g/day;  $P_{\text{trend}} = 0.002$ ), but not in females ( $P_{\text{trend}} = 0.773$ ). The first three quartiles of intake for males and all quartiles of intake for females (significant) were inversely associated with mean body weight changes over the follow-up. Similar results were reported for sucrose.

In the EPITeen cohort of adolescents in Portugal, free sugars intake at age 13 years [mean (SD): 72.8 (45.8) g/day] was negatively, but not significantly, associated with BMI z-score at age 21 years. In the CARDIA cohort of black and white young adults in the USA, BMI was higher across increasing quintiles of added sugar intakes at the end of the 25-year follow-up ( $P_{\text{trend}} = 0.02$ ). Quintiles of added sugars were created for the average of baseline, year 7 and year 20 intake, and ranged from a mean (SE) intake of 30.6 (0.32) g/day in the lowest quintile to 159.7 (1.90) g/day in the highest quintile of intake.

Based on eight PCs from the original search, the Panel concluded there was no support for a positive relationship between intake of added and/or free sugars and changes in body weight or BMI, with the majority of PCs observing negative or null associations. The Panel also noted heterogeneity in relation to analytical strategies applied in the investigation of the relationship and in respect to the exposure–endpoint relationships assessed. The Panel considers that these three new PCs would not change the conclusion of the preliminary uncertainty analysis, and therefore will not be incorporated into the scientific assessment.

#### 4.2.1.3. Fructose

<b>sQ3.1. Fructose and risk of obesity</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of obesity, incidence of abdominal obesity	0	0
<b>LoE2. Standalone (surrogate)</b>	Body weight/BMI, waist circumference	1	2
<b>LoE3. Complementary</b>	Body fat, abdominal fat	0	1

**LoE2. Standalone (surrogate). Body weight/BMI, waist circumference. PCs.** Only one new study (Takayama, Yamakawa et al., 2020) was identified for the exposure fructose. The Takayama study has been briefly described in the previous sections for the total sugars and free sugars. Similarly to free sugars, there was a positive association between the intake of fructose at baseline and weight gain in males only ( $P_{\text{trend}} = 0.022$ ), with a mean (95% CI) estimate weight change of 0.12 (0.05, 0.19) kg/10 years for the fourth energy-adjusted quartile of intake (median intake: 23.7 g/d). For the lower three quartiles of intake, there was a body weight decrease over the follow-up. In females, body weight decreased in all quartiles of fructose intake ( $P_{\text{trend}} = 0.133$ ).

Based on two PCs that reported on changes in WC, one of which also reported on changes in BMI, the Panel concluded there was no support for a positive association between fructose intake and risk of obesity. The Panel considers that the new PC identified would not change the conclusion of the preliminary uncertainty analysis, and therefore will not be incorporated into the scientific assessment.

#### 4.2.1.4. Sugar-sweetened beverages

<b>sQ4.1. SSBs and risk of obesity</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of obesity, incidence of abdominal obesity	2	10
<b>LoE2. Standalone (surrogate)</b>	Body weight/BMI, waist circumference	8	21
<b>LoE3. Complementary</b>	Body fat, abdominal fat	1	6

The Panel concluded on a positive and causal relationship between the intake of SSBs and risk of obesity with a moderate level of certainty (> 50–75% probability). The relationship was observed for SSBs consumed *ad libitum* (i.e. not keeping TEI constant in the analysis). This was based on 10 PCs reporting on incidence of obesity and/or abdominal obesity, with all studies reporting a positive association. There was also consistency across LoEs, with the BoE from PCs suggesting a positive relationship between intake of SSBs *ad libitum* and measures of body weight, BMI and WC. Measures of body fat were generally consistent with BMI in the few studies that assessed both endpoints. The new PCs identified in the updated literature search will therefore not be incorporated into the assessment (see [Section 3](#)).

**LoE1. Standalone (main): Incidence of obesity, incidence of abdominal obesity. PCs.** Two PCs investigated the relationship between the intake of SSBs and incidence of overweight/obesity (GUSTO, Quah et al., 2019; WAPCS, Zheng et al., 2019). The GUSTO study was conducted in young children in Singapore and the WAPCS in Australian adolescents who were followed into adulthood. Both studies analysed SSB intake both as a continuous and categorical variable and used the standard multivariable model for energy adjustment. Both studies adjusted for baseline BMI (WAPCS) or a proxy (maternal BMI 48 months post-partum and birthweight for gestational age, GUSTO).

The two studies reported a positive relationship between the intake of SSBs and the incidence of overweight/obesity. The relationship was significant, except for the categorical analysis in the WAPCS.

**LoE2. Standalone (surrogate). Body weight/BMI, waist circumference. PCs.** In total, eight PCs investigated the relationship between SSBs and measures of body weight, BMI or BMI z-scores (HWCS, González-Morales et al., 2020; PREDIMED, Konieczna et al., 2019; IFS, Marshall et al., 2019; STOP-SA, Okop et al., 2019; GUSTO, Quah et al., 2019; CARDIA, Yi et al., 2020; WAPCS, Zheng et al., 2019 and Mullie et al., 2017). Of these, two studies also investigated WC (PREDIMED, WAPCS). The WAPCS cohort was also identified in the original search for the same exposure and endpoint and now reported on a longer follow-up.

Four PCs investigated the relationship between the intake of SSBs at baseline and measures of body weight or BMI, two of which were in adults (STOP-SA and Mullie et al. 2017) and two in children and/or adolescents (GUSTO, WAPCS). Mullie et al. (2017) also reported on the relationship between changes in intake of SSBs and concurrent weight change over the 10-year follow-up. Except for the STOP-SA cohort that conducted a categorical analysis only, the other three cohorts analysed the exposure both as a continuous and categorical variable. All four cohorts used the standard multivariable model for energy adjustment and all, except for the GUSTO study, adjusted for baseline weight or BMI.

Two PCs in adults investigated the relationship between change in SSB intake and measures of body weight or BMI (PREDIMED, HWCS). In the HWCS cohort, SSB intake was analysed as a continuous



variable, without adjustment for TEI or baseline weight in the multivariable model, but they carried out a sensitivity analysis stratified by baseline BMI that showed similar results. The PREDIMED study analysed yearly changes in SSBs and concurrent yearly changes in weight over the 5-year follow-up. There was adjustment for baseline BMI in the multivariable analyses, but not for TEI.

The CARDIA study in young adults investigated the relationship between the average of baseline, year 7 and year 20 intake of SSBs and BMI at the end of the 25-year follow-up. SSB intake was analysed as a categorical variable using the standard multivariable model for energy adjustment, with no adjustment for baseline BMI. The IFS cohort in children investigated the relationship between average SSB intake and BMI z-scores throughout childhood and adolescence. In the continuous analyses of SSB intake, TEI was adjusted for using the standard multivariate method. No adjustment for baseline BMI was made.

All eight PCs reported positive associations between SSBs intake and measures of body weight, BMI or BMI z-scores, with the association being significant in five of the eight cohorts (IFS, STOP-SA, GUSTO, CARDIA, WAPCS).

The WAPCS and PREDIMED studies reported changes in WC that were consistent with changes in BMI and body weight, respectively. Similarly, in the GUSTO study, changes in body fat (skinfold thickness) were consistent with changes in BMI z-scores (**LoE3. Complementary**).

The Panel notes that the newly identified evidence is in line with the original BoE, with all PCs reporting a positive relationship between the consumption of SSBs and risk of obesity (incidence of overweight/obesity, continuous measures of body weight/BMI, WC, body fat).

#### 4.2.1.5. Fruit juices

<b>sQ5.1. Fruit juices and risk of obesity</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of obesity, incidence of abdominal obesity	0	2
<b>LoE2. Standalone (surrogate)</b>	Body weight/BMI, waist circumference	2	10
<b>LoE3. Complementary</b>	Body fat, abdominal fat	0	3

The Panel concluded on a positive and causal relationship between the intake of FJs and risk of obesity with a very low level of certainty. This was based on seven out of eight PCs reporting a positive association between changes in FJs intake and concurrent changes in body weight and/or BMI z-scores. The new PCs identified in the updated literature search will therefore not be incorporated into the assessment (see [Section 3](#)).

**LoE2. Standalone (surrogate). Body weight/BMI, waist circumference. PCs.** Two new studies reporting on average FJs consumption and changes in BMI or BMI z-scores were identified (IFS, Marshall et al., 2019; FCS, Wan et al., 2020). In the IFS cohort the exposure was analysed as a continuous variable, and in the FCS cohort as a categorical variable. In both studies the standard multivariate method was used to adjust for TEI and no adjustment for baseline BMI was made.

In the IFS cohort of children followed from birth through to the age of 17 years, each additional 8 oz (~237 ml) of total fruit juice intake (fruit drink and 100% FJ) per day in average intake throughout childhood and adolescence (i.e. from age 2 to 17 years) was associated with a decrease in BMI z-score of 0.001 units (95% CI: -0.059, 0.057). When only 100% FJ was analysed, each additional 8 oz (~237 ml) of 100% FJ intake per day in average intake from age 9 through to the end of follow-up at age 17 years, was associated with an increase in BMI z-score of 0.044 units (95% CI: -0.038, 0.125). In the 10-year follow-up of the FCS cohort of children, there was no association between average intake of 100% FJ during pre-school years (age 3–6 years) and change in BMI throughout childhood (age 3–17 years).

The Panel notes that results of the newly identified PCs are mixed. The Panel also notes that these studies investigated the relationship between the intake of FJs at baseline and changes in the endpoint over follow-up, whereas the PCs from the original search used to perform the comprehensive uncertainty analysis investigated the relationship between changes in the exposure and concurrent changes in the endpoint.



#### 4.2.2. Risk of NAFLD/NASH

No new PCs reporting on endpoints in standalone LoEs were identified in relation to the risk of NAFLD/NASH for any exposure.

The updated literature search yielded one PC that investigated the relationship between the intake of added sugars and SSBs and visceral adipose tissue (VAT), an endpoint in the complementary LoE. Because complementary LoEs cannot answer the subquestion on the risk of disease by themselves, the new PC will not be incorporated into the scientific assessment (see [Section 3](#)).

##### 4.2.2.1. Added and/or free sugars

<b>sQ2.2. Added (and free) sugars and risk of NAFLD/NASH</b>			
LoE	Endpoints	PCs (n)	
		New	Original
<b>LoE1. Standalone (main)</b>	Incidence of NAFLD/NASH	0	0
<b>LoE2. Standalone (surrogate)</b>	Liver fat	0	0
<b>LoE3. Complementary</b>	Skeletal muscle fat and visceral adipose tissue	0/1	0
<b>LoE4. Complementary</b>	Risk of obesity	sQ2.1	

**LoE3. Complementary: Skeletal muscle fat and visceral adipose tissue. PCs.** One PC (CARDIA, Yi et al., 2020) investigated the relationship between the average intake of added sugars at baseline, year 7 and year 20 and VAT at the end of the 25-year follow-up in adult males and females. Added sugars were analysed as categorical variable using the standard multivariable model for energy adjustment, therefore not keeping TEI constant. A significant positive relationship ( $P_{\text{trend}} = 0.004$ ) between the intake of added sugars and VAT was reported after adjusting for relevant confounders, including BMI at end of follow-up.

##### 4.2.2.2. Sugar-sweetened beverages

<b>sQ4.2. SSBs and risk of NAFLD/NASH</b>			
LoE	Endpoints	PCs (n)	
		New	Original
<b>LoE1. Standalone (main)</b>	Incidence of NAFLD/NASH	0	0
<b>LoE2. Standalone (surrogate)</b>	Liver fat	0	0
<b>LoE3. Complementary</b>	Skeletal muscle fat/visceral adipose tissue	0/1	0/1
<b>LoE4. Complementary</b>	Risk of obesity	sQ4.1	

**LoE3. Complementary: Skeletal muscle fat and visceral adipose tissue. PCs.** The CARDIA study also reported on associations between consumption of SSBs and ectopic fat deposition in VAT. Similarly to added sugars, VAT was higher across increasing quintiles of SSB intakes at the end of the 25-year follow-up ( $P_{\text{trend}} = 0.004$ ).

#### 4.2.3. Risk of T2DM

No new studies reporting on the relationship between the intake total sugars or fructose and endpoints related to the risk of type 2 diabetes mellitus (T2DM) were identified.

##### 4.2.3.1. Added and/or free sugars

<b>sQ2.3. Added (and free) sugars and risk of Type 2 diabetes mellitus</b>			
LoE	Endpoints	PCs (n)	
		New	Original
<b>LoE1. Standalone (main)</b>	Incidence of T2DM	0	4 <sup>(a)</sup>
<b>LoE2. Standalone (surrogate)</b>	Measures of glucose tolerance	0	2
<b>LoE3. Complementary</b>	Indices of insulin sensitivity/beta-cell function	1	2
<b>LoE4. Complementary</b>	Measures of insulin sensitivity	0	0
<b>LoE5. Complementary</b>	Risk of obesity	sQ2.1	

(a): Of which one was a PCC.

No new PCs reporting on endpoints in standalone LoEs were retrieved in relation to the risk of T2DM for added (or free) sugars. Therefore, the new PC identified for this subquestion will not be incorporated into the scientific assessment (see [Section 3](#)).

**LoE3. Complementary. Measures of insulin sensitivity. PCs.** The EPITeen cohort (Marinho et al., 2020) reported a positive, non-significant, association between the intake of free sugars at age 13 years and HOMA-IR, an insulin resistance index, at age 21 years. Free sugars intake was analysed as a continuous variable using an energy partition model to assess the full effect of free sugars (i.e. the energy and non-energy contribution of the nutrient, while keeping energy intake from other nutrients constant), therefore allowing for TEI to change as a function of free sugar consumption.

#### 4.2.3.2. Sugar-sweetened beverages

<b>sQ4.3. SSBs and risk of type 2 diabetes mellitus</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of T2DM	5	14 <sup>(a)</sup>
<b>LoE2. Standalone (surrogate)</b>	Measures of glucose tolerance	1	1
<b>LoE3. Complementary</b>	Indices of insulin sensitivity/beta-cell function	1	2
<b>LoE4. Complementary</b>	Measures of insulin sensitivity	0	0
<b>LoE5. Complementary</b>	Risk of obesity	sQ4.1	

(a): Of which one was a PCC.

The Panel concluded on a positive and causal relationship between the intake of SSBs and risk of T2DM with a high level of certainty (> 75–100% probability). The relationship was observed for SSBs consumed *ad libitum* (i.e. not keeping TEI constant in the analysis). This was based on 14 PCs reporting on the incidence of T2DM, of which 13 observed a positive association between the exposure and the endpoint. A significant positive linear dose relationship was also observed in the dose–response meta-analysis conducted by EFSA. The increased incidence of T2DM was consistent with an increased risk of obesity associated with the consumption of these beverages, but there were no PCs available from other standalone or complementary LoEs that are specific to this subquestion. The new PCs identified in the updated literature search will therefore not be incorporated into the assessment (see [Section 3](#)).

**LoE1. Standalone (main): Incidence of T2DM. PCs.** Five PCs reporting on the relationship between SSBs intake and incidence of T2DM met the inclusion criteria (HPFS, NHS and NHS II, Drouin-Chartier et al., 2019; CARDIA, Hirahatake et al., 2019; MTC, Stern et al., 2019). The three cohorts in the paper by Drouin-Chartier et al. (2019), as well as the CARDIA cohort, were part of the BoE identified in the original search for the same exposure–endpoint, and now report results while using a different statistical approach (HPFS, NHS and NHS II) or for a longer follow-up (CARDIA).

The three healthcare workers cohorts (HPFS, NHS, NHSII) investigated the relationship between 4-year change in beverage consumption and the risk of T2DM in the subsequent 4-year period. The CARDIA study in young adults investigated the relationship between the average intake of SSBs at baseline, year 7 and year 20, and incident T2DM over the 30-year follow-up. The MTC cohort of female teachers investigated baseline SSB intake and incident T2DM over a median follow-up of 2.16 years. All studies analysed SSB intake as a categorical variable, while the CARDIA and MTC studies also investigated SSB intake as a continuous variable. Energy intake was adjusted for using the standard multivariate method in all studies except for the MTC cohort, which did not adjust for energy or BMI.

All PCs observed a positive association between SSB intake and incident T2DM. The association was statistically significant in both analyses in the MTC cohort, for the continuous analysis in the CARDIA cohort and in a pooled analysis of the NHS, NHSII and HPFS.

The Panel notes that the newly identified evidence is in line with the original BoE, with all the PCs reporting a positive relationship between the intake of SSBs and incidence of T2DM.

**LoE2. Standalone (surrogate): Measures of glucose tolerance. PCs.** The HWCS cohort (Rivera-Paredes et al., 2020) investigated the relationship between the intake of SSBs and measures of glucose tolerance. SSB intake was analysed as a continuous variable and energy intake was adjusted for using the standard multivariate model. In this follow-up of adults aged 20–70 years old at baseline, cumulative

SSB consumption was positively associated with changes in fasting glucose ( $p < 0.001$ ) and fasting insulin ( $p = 0.064$ ) concentrations.

The association between cumulative SSB intake and HOMA-IR was also positive and statistically significant ( $p = 0.004$ ). Similar results were observed when SSB intake was analysed as a categorical variable (**LoE3. Complementary**).

#### 4.2.3.3. Fruit juices

<b>sQ5.3. FJs and risk of Type 2 diabetes mellitus</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of T2DM	4	9 <sup>(a)</sup>
<b>LoE2. Standalone (surrogate)</b>	Measures of glucose tolerance	0	0
<b>LoE3. Complementary</b>	Indices of insulin sensitivity/beta-cell function	0	0
<b>LoE4. Complementary</b>	Measures of insulin sensitivity	0	0
<b>LoE5. Complementary</b>	Risk of obesity	sQ5.1	

(a): Of which one was a PCC.

The Panel concluded on a positive and causal relationship between the intake of FJs and risk of T2DM with a moderate level of certainty ( $> 50$ – $75\%$  probability). The relationship was observed both keeping and not keeping TEI constant in the analysis. This conclusion was based on nine PCs reporting on incidence of T2DM, among which six reported a positive association. There was also a significant positive linear dose relationship between FJs intake and incident T2DM in the dose–response meta-analysis conducted by EFSA. The increased incidence of T2DM was consistent with an increased risk of obesity associated with the consumption of FJs, but there were no PCs available from other standalone or complementary LoEs that were specific to this subquestion. The new PCs identified in the updated literature search will therefore not be incorporated into the assessment (see [Section 3](#)).

**LoE1. Standalone (main): Incidence of T2DM. PCs.** Four PCs investigated the relationship between the intake of FJs and incidence of T2DM (EPIC-NL, Scheffers et al., 2020; HPFS, NHS and NHS II, Drouin-Chartier et al., 2019). The three US cohorts, the NHS, NHSII and HPFS, were also identified in the original search for the same exposure–endpoint, and now report results while using a different statistical approach (i.e. in the original search publications report on baseline intake vs. end of follow-up risk of disease, whereas the new publications report on 4-year changes in intake vs. subsequent 4-year risk of disease).

All PCs analysed the intake of FJs as categorical variable using the standard multivariable model to adjust for energy, therefore not keeping TEI constant. All cohorts include BMI as a covariate in the most adjusted models, however, the EPIC-NL did no longer adjust for energy intake when BMI was introduced in the model.

A positive relationship between the consumption of FJs and incidence of T2DM was observed in the three US cohorts and was statistically significant in the NHS and HPFS. In a pooled analysis of the three cohorts, the association was also positive and statistically significant. In the EPIC-NL cohort, for the model that adjusted for energy intake the association was positive (non-significant), but this association was null when BMI and WC were adjusted (without energy intake adjustment).

The Panel notes that the newly identified evidence was in line with the original BoE, with all PCs reporting a positive relationship between the intake of FJs and incidence of obesity.

#### 4.2.4. Risk of dyslipidemia

No new PCs reporting on the relationship between the intake of added (and free) sugars or fructose and endpoints related to the risk of dyslipidemia were identified.

##### 4.2.4.1. Total sugars

<b>sQ1.4. Total sugars and risk of dyslipidemia</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>

<b>LoE1. Standalone (main)</b>	Incidence of high total-c, LDL-c, TG, or low HDL-c	0	0
<b>LoE2. Standalone (surrogate)</b>	Changes in total-c, LDL-c, TG, HDL-c or derived indices	1	2
<b>LoE3. Complementary</b>	Risk of obesity	sQ1.1	
<b>LoE4. Complementary</b>	Risk of Type 2 diabetes mellitus	sQ1.3	

### **LoE2. Standalone (surrogate): Changes in total-c, LDL-c, TG, HDL-c or derived indices. PCs.**

One PC study (Generation R, Nguyen et al., 2020) of Dutch children investigated the relationship between the intake of total sugars and changes in non-fasting blood lipids. Total sugars intake was analysed as a continuous variable and the nutrient residual (energy-adjusted) method was used to investigate total sugars in isocaloric exchange with other macronutrients. The most adjusted models included, among other covariates, a fat mass index and a fat-free mass index to adjust for body composition.

A positive, non-significant association was observed between the intake of total sugars at one year of age and mean changes in LDL-cholesterol between ages 6 and 10 years (0.01 age- and sex-specific SD scores (SDS) per each 10 g/day increase in total sugars intake; 95% CI: -0.01, 0.03). No association was observed for total cholesterol, whereas the relationship between total sugars intake and changes in HDL-cholesterol was inverse and statistically significant (mean: -0.03 SDS per each 10 g/day increase in total sugars intake; 95% CI: -0.04, 0.01).

Based on two PCs from the original search, the Panel concluded that the available BoE did not support a positive relationship between the intake of total sugars in isocaloric exchange with other macronutrients and adverse effects on blood lipids. Total sugars intake was largely unrelated to blood lipid levels in both studies after adjusting for relevant covariates, including dietary fat. In addition, the two PCs were heterogeneous regarding the population studied and the exposure–endpoint combinations assessed (total sugars intake at baseline vs. blood lipid levels at the end of follow-up; changes in total sugars intake vs. concurrent changes in blood lipids). The Panel considers that adding the new PC would not change the conclusion of the preliminary uncertainty analysis, and therefore it will not be incorporated into the scientific assessment.

### **4.2.4.2. Sugar-sweetened beverages**

<b>sQ4.4. SSBs and risk of dyslipidemia</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of high total-c, LDL-c, TG, or low HDL-c (cut-offs)	2	3
<b>LoE2. Standalone (surrogate)</b>	Changes in total-c, LDL-c, TG, HDL-c or derived indices	2	2
<b>LoE3. Complementary</b>	Risk of obesity (sQ4.1)	sQ4.1	
<b>LoE4. Complementary</b>	Risk of type 2 diabetes mellitus (sQ4.3)	sQ4.3	

### **LoE1. Standalone (main): Incidence of high total-c, LDL-c, TG, or low HDL-c (cut-offs). PCs.**

Two PCs investigated the relationship between the intake of SSBs and incidence of high triglycerides ( $\geq 2.0$  mmol/l), low HDL-cholesterol ( $< 1.04$  and  $< 1.3$  mmol/L for men and women, respectively), and high LDL-cholesterol ( $\geq 4.1$  mmol/l) (Framingham Offspring and Framingham-3Gen, Haslam et al., 2020). The intake of SSBs was analysed as a categorical variable using the standard multivariable model for energy adjustment, therefore TEI was not kept constant. In the Framingham Offspring SSB exposure was estimated as 'recent' intake (i.e. intake at examination before developing dyslipidemia) and as 'cumulative' average intake (i.e. mean of the intakes reported at every examination up to and including the examination at which dyslipidemia was diagnosed). Given that the Framingham-3Gen cohort had only two visits, exposure was estimated only for 'recent' intake (baseline).

'Cumulative' SSBs intake during the mean 12.5 years of follow-up of adults in the Framingham Offspring cohort was positively associated with the development of dyslipidemia. The relationship was statistically significant only for incidence of high triglycerides ( $HR_{C5 \text{ vs. } C1}$ , 1.52; 95% CI: 1.03–2.25;  $P_{\text{trend}} = 0.03$ ). Similar results were observed when 'recent' intake was used for analysis. Similarly, the Framingham-3Gen cohort reports a positive (non-significant) relationship between 'recent' intake (baseline) of SSBs and development of dyslipidemia over the mean 6.1 years of follow-up.

The two PCs also investigated the relationship between average intakes of SSBs over a 4-year period and concurrent changes in blood lipids [**LoE2. Standalone (surrogate)**]. The associations observed for changes in blood lipids were consistent with the relationship observed for incidence of dyslipidemia.

Three PCs reporting on the relationship between the intake of SSBs and risk of dyslipidaemia were identified through the original literature search, and the three reported positive relationships between the exposure and incidence of high triglycerides. However, due to the conflicting results for males and females reported in one study, the fact that these relationships were not statistically significant in any study, and that these PCs were between a moderate ( $n = 2$ ) and high ( $n = 1$ ) risk of bias, the Panel concluded that the available BoE did not support a positive relationship between the intake of SSBs and incidence of dyslipidemia. The Panel considers, however, that the new PCs identified through the update of the literature search could change the conclusion of this preliminary uncertainty analysis, and therefore will be incorporated into the scientific assessment.

#### 4.2.4.3. Fruit juices

<b>sQ5.4. FJs and risk of dyslipidemia</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of high total-c, LDL-c, TG, or low HDL-c (cut-offs)	2	1
<b>LoE2. Standalone (surrogate)</b>	Changes in total-c, LDL-c, TG, HDL-c or derived indices	2	0
<b>LoE3. Complementary</b>	Risk of obesity (sQ5.1)	sQ5.1	
<b>LoE4. Complementary</b>	Risk of Type 2 diabetes mellitus (sQ5.3)	sQ5.3	

#### **LoE1. Standalone (main): Incidence of high total-c, LDL-c, TG, or low HDL-c (cut-offs). PCs.**

Two PCs investigated the relationship between the intake of FJs and incidence of high triglycerides ( $\geq 2.0$  mmol/l), low HDL-cholesterol ( $< 1.04$  and  $< 1.3$  mmol/L for men and women, respectively), and high LDL-cholesterol ( $\geq 4.1$  mmol/l) (Framingham Offspring and Framingham-3Gen, Haslam et al., 2020). These two PCs were briefly described in the section above for the exposure SSBs.

No significant relationships were observed between FJs intake and incidence of high triglycerides (null), high LDL-cholesterol (negative) and low HDL-cholesterol (negative) in either cohort.

These PCs also analysed the relationship between average intakes of FJs over a 4-year period and concurrent changes in blood lipids. The results were consistent with those reported for incidence of dyslipidemia [**LoE2. Standalone(surrogate)**].

Based on one PC identified in the original search, the Panel concluded that there was no support for a positive association between FJs intake and risk of dyslipidemia. The Panel considers that the new PCs would not change the conclusion of the preliminary uncertainty analysis, and therefore will not be incorporated into the scientific assessment.

#### 4.2.5. Risk of hypertension

No new PCs reporting on endpoints in standalone LoEs in relation to the risk of hypertension were identified for any exposure.

The updated literature search yielded one PC that investigated the relationship between the intake of added sugars and uric acid levels, an endpoint in a complementary LoE. As complementary LoEs cannot answer the subquestion on the risk of disease by themselves, the new PC will not be incorporated into the scientific assessment (see [Section 3](#)).

#### 4.2.5.1. Added and/or free sugars

<b>sQ2.5. Added (and free) sugars and risk of hypertension</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of hypertension	0	0
<b>LoE2. Standalone (surrogate)</b>	Changes in SBP and/or DBP	0	2
<b>LoE3. Complementary</b>	Incidence of hyperuricemia/ uric acid	1/0	0



<b>LoE4. Complementary</b>	Risk of obesity	sQ2.1
<b>LoE5. Complementary</b>	Risk of Type 2 diabetes mellitus	sQ2.3

**LoE3. Complementary: Incidence of hyperuricemia/uric acid. PCs.** One PC (HANDLS, Beydoun et al., 2018) of adults living in Baltimore, USA, investigated the relationship between the intake of added sugars at baseline and changes in serum uric acid concentrations over a mean follow-up of 4.6 years. The exposure was analysed as a continuous variable (teaspoons/day; 1 teaspoon = 4.2 g). The intake of added sugars was not associated with annual changes in serum uric acid concentrations in continuous analyses when relevant covariates when accounted for. In sensitivity analysis, additional adjustment for TEI did not significantly modify these results. The Panel notes that, in this study, the term 'added sugars' may only refer to sugars added by the consumer (measured in teaspoons through 24-h recalls) and not to added sugars from all sources (e.g. in manufactured food products).

#### 4.2.6. Risk of CVDs

##### 4.2.6.1. Total sugars

<b>sQ1.6. Total sugars and risk of cardiovascular diseases (CVDs)</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence and mortality: CVD (composite endpoint), CHD or stroke	3	6
<b>LoE2. Complementary</b>	Risk of obesity	sQ1.1	
<b>LoE3. Complementary</b>	Risk of type 2 diabetes mellitus	sQ1.3	
<b>LoE4. Complementary</b>	Risk of dyslipidaemia	sQ1.4	
<b>LoE5. Complementary</b>	Risk of hypertension	sQ1.5	
<b>LoE6. Complementary</b>	Incidence of hyperuricemia/uric acid	LoE3 for sQ1.5	

**LoE1. Standalone (main): Incidence and mortality: CVD (composite endpoint), CHD or stroke. PCs.** Three publications were identified through the update of literature search reporting on the relationship between the intake of total sugars and CVDs (incidence or mortality). Two PCs report on incidence of CVD (composite endpoint; UK Biobank, Ho et al., 2020) or CHD (EPIC-Multicentre, Sieri et al., 2020), and one PC (Takayama, Nagata et al., 2019) on CVD mortality (composite endpoint). The EPIC-Multicentre study included three individual EPIC cohorts for which individual publications reporting on the same exposure and endpoint had been included in the original BoE (EPIC-Utrecht, Beulens et al., 2007; EPIC-Morgen, Burger et al., 2011; and EPICOR, Sieri et al., 2010).

The UK Biobank and Takayama cohorts analysed total sugars as a categorical variable using the nutrient density (energy-adjusted) method for energy adjustment, while the EPIC-Multicentre study analysed total sugars both as categorical and continuous variables using the nutrient residual (energy-adjusted) method. In both cases, TEI was kept constant in the analysis and therefore total sugars were investigated in isocaloric exchange with other macronutrients. BMI was adjusted for in all three cohorts.

The UK Biobank cohort consisted of 195,658 participants, aged 37–73 years, from 22 centres across the UK, that were followed up for a mean of 9.7 (range 8.5–13.0) years during which period there were 10,724 (5.5%) cardiovascular events. Total sugar intake was calculated as mean values from up to five assessment periods over five years, using a 24-h recall questionnaire. There was a positive and statistically significant linear relationship between total sugar intake and incidence of CVDs, with the risk of CVD lowest amongst those who consumed 5–20% of energy from sugar (HR = 0.83; 95% CI: 0.80, 0.87) compared with those with a high consumption (35%E; 7.11 vs. 7.83 per 1000 person years, respectively).

In the Takayama (Japan) cohort of 29,079 participants from the general population aged 35 years and over, in total, 775 (5.8%) and 903 (5.74%) CVD deaths were recorded in males and females, respectively over a mean follow-up of 14.1 years (up to 16 years). The intake of total sugars was assessed at baseline using food frequency questionnaires and the median intake ranged from 4.4%E in the lowest quartile to 13%E in the highest quartile in males, and from 6.6 to 15.4%E in females, respectively. Intake of total sugars was significantly and positively associated with CVD mortality in males (HR<sub>Q4 vs. Q1</sub> = 1.39; 95% CI: 1.08, 1.78; P<sub>trend</sub> = 0.001), while the association was null for females (HR<sub>Q4 vs. Q1</sub> = 0.99; 95% CI: 0.81, 1.22; P<sub>trend</sub> = 0.83).

The EPIC-Multicentre study is a pooled analysis of data from 23 centres representing eight European countries. The EPIC-Multicentre cohort consisted of 338,325 participants aged 35–70 years that were followed up for a median of 12.8 years. Total sugar intake was assessed at baseline using food frequency questionnaires and energy-adjusted median intake ranged from 64.9 g/day in the lowest quintile to 144.5 g/day in the highest quintile of intake. The relationship between total sugar intake and CHD incidence was positive and statistically significant, with the HR (95% CI) for the highest vs. the lowest quintile of total sugar intake being 1.24 (1.09, 1.40). The HR (95% CI) per each 50 g/day increase in total sugars intake was 1.09 (1.02, 1.17).

Based on six PCs from the original search (WHI, Tasevska et al., 2018; NIH-AARP, Tasevska et al., 2014; SCHS, Rebello et al., 2014; EPIC-Utrecht, Beulens et al., 2007; EPIC-Morgen, Burger et al., 2011; EPICOR, Sieri et al., 2010, 2013), the Panel concluded that the available BoE did not support a positive relationship between the intake of total sugars in isocaloric exchange with other macronutrients and risk of CVDs. The Panel notes that, with the exception of females in the Takayama cohort, all three PCs identified through the update of the literature reported a positive relationship between the intake of total sugars and CVDs incidence or mortality. The Panel considered that the new PCs could change the conclusion of the preliminary uncertainty analysis, and therefore will be incorporated into the scientific assessment.

#### 4.2.6.2. Added and/or free sugars

<b>sQ2.6. Added (and free) sugars and risk of cardiovascular diseases</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence and mortality: CVD (composite endpoint), CHD or stroke	2	3
<b>LoE2. Complementary</b>	Risk of obesity	sQ2.1	
<b>LoE3. Complementary</b>	Risk of type 2 diabetes mellitus	sQ2.3	
<b>LoE4. Complementary</b>	Risk of dyslipidaemia	sQ2.4	
<b>LoE5. Complementary</b>	Risk of hypertension	sQ2.5	
<b>LoE6. Complementary</b>	Incidence of hyperuricemia/uric acid	LoE3 for sQ2.5	

**LoE1. Standalone (main): Incidence and mortality: CVD (composite endpoint), CHD or stroke. PCs.** Three publications that report on two PCs were identified through the update of the literature search (MDCS, Ramne et al., 2019; Kulezic et al., 2019; Takayama, Nagata et al., 2019). For the MDCS cohort, Ramne and colleagues investigated the relationship between the intake of added and free sugars and CVD (composite endpoint) mortality, while Kulezic and colleagues investigated the relationship between sucrose intake and incidence of peripheral artery disease (PAD). The Takayama cohort reports on the relationship between intake of added sugars and sucrose, and CVD mortality as a composite endpoint. The MDCS cohort was also identified in the original literature search reporting on the relationship between sucrose intake, amongst other exposures, and incidence of CVD (composite endpoint), CHD and ischaemic stroke.

In all three publications, the respective exposure was analysed as a categorical variable using the nutrient density (energy-adjusted) method for energy adjustment (i.e. TEI was kept constant in the analysis), and therefore added and/or free sugars (and sucrose as a proxy for added sugars) were investigated in isocaloric exchange with other macronutrients. BMI was adjusted for in all three publications.

In the MDCS cohort of 24,272 Swedish adults aged 44–73 years, there were a total of 1952 (8%) CVD-related deaths during the ~20 years (median) follow-up. Participants in the lowest (< 5%E) and highest (≥ 20%E) categories of added sugar consumption had the highest risk of CVD mortality compared with those in the reference intake category (7.5 to < 10%E) (HR<sub>C1 vs. C3</sub> = 1.22, 95% CI: 1.02, 1.47 and HR<sub>C5 vs. C3</sub> = 1.40, 95% CI: 1.09, 1.82, respectively). A similar U-shaped association was reported for free sugars, with an HR (95% CI) of 1.24 (1.01, 1.53) and 1.31 (1.03, 1.66) for the lowest and highest intake categories, respectively, compared with the referent intake category. While the association for those with a consumption of 5 to < 7.5%E was still positive (non-significant), the association in those consuming between 10 to 20%E was close to null for both added and free sugars vs. the reference category (7.5 to < 10%E). In the investigation of the relationship between sucrose intake and incidence



of PAD, those consuming  $\leq 10\%$  of energy from sucrose had a higher risk for incident PAD compared with those consuming  $\geq 10\%$ E (referent category) (HR = 1.10, 95% CI: 0.96, 1.27).

The Takayama cohort was briefly described in the above section for the exposure total sugars. The median intake of added sugars, and sucrose, ranged from 1.3%E, and 1.5%E, in the lowest quartile to 6.9%E, and 4.9%E, in the highest quartile in males, respectively, and from 2.1%E, and 2.4%E, to 7.9%E, and 6.3%E respectively, in females. As for total sugars, there was a positive and significant association between both added sugars, and sucrose, and CVD mortality in males (HR<sub>Q4 vs. Q1</sub> = 1.37, 95% CI: 1.10, 1.71,  $P_{\text{trend}}$  = 0.0002 and = 1.35, 95% CI: 1.06, 1.72,  $P_{\text{trend}}$  = 0.002, respectively), whereas the association in females was also positive but non-significant (HR<sub>Q4 vs. Q1</sub> = 1.05, 95% CI: 0.87, 1.27,  $P_{\text{trend}}$  = 0.52 and = 1.03, 95% CI: 0.84, 1.27,  $P_{\text{trend}}$  = 0.53, respectively).

Among the three PCs identified through the original search, two (Mr and Ms Os, Liu et al., 2018; NIH-AARP, Tasevska et al., 2014) reported negative and non-significant associations between the intake of added (and free) sugars (and sucrose as a proxy) and CVD mortality and one reported a positive (non-significant) relationship between the intake of sucrose and incidence of CVD (MDCS, Sonestedt et al., 2015). The MDCS cohort also reported a positive and significant relationship between the intake of sucrose and incidence of CHD, whereas the relationship was negative (non-significant) for ischaemic stroke. The Panel noted that only one PC on the relationship between sucrose intake and incidence of CHD was available and concluded that the available BoE did not suggest a positive relationship between the intake of added (or free) sugars and risk of CVD.

In the new search, U-shaped (MDCS) and positive linear (Takayama; in males only) dose-response relationships were reported between the intake of added (and free) sugars (and sucrose as a proxy for added sugars) and CVD mortality. The relationship between the intake of sucrose and PAD was inverse and statistically significant (MDCS). The Panel also noted that the original BoE already included the MDCS cohort also identified in the update of the literature search.

The Panel considers that the new PCs would not change the conclusion of the preliminary uncertainty analysis, and therefore will not be incorporated into the scientific assessment.

#### 4.2.6.3. Fructose

<b>sQ3.6. Fructose and risk of cardiovascular diseases</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence and mortality: CVD (composite endpoint), CHD or stroke	1	2
<b>LoE2. Complementary</b>	Risk of obesity	sQ3.1	
<b>LoE3. Complementary</b>	Risk of Type 2 diabetes mellitus	sQ3.3	
<b>LoE4. Complementary</b>	Risk of dyslipidaemia	sQ3.4	
<b>LoE5. Complementary</b>	Risk of hypertension	sQ3.5	
<b>LoE6. Complementary</b>	Incidence of hyperuricemia/uric acid	LoE3 for sQ3.5	

**LoE1. Standalone (main): Incidence and mortality: CVD (composite endpoint), CHD or stroke. PCs.** The Takayama cohort also reports on the relationship between fructose intake and CVD (composite endpoint) mortality. As was the case for total and added sugars, fructose was investigated as a categorical variable using the nutrient density (energy-adjusted) method for energy adjustment, therefore keeping TEI constant.

Similar to the results reported for total and added sugars, fructose intake was significantly and positively associated with increased risk of CVD mortality in males only (HR<sub>Q4 vs. Q1</sub> = 1.31, 95% CI: 1.03, 1.67;  $P_{\text{trend}}$  = 0.002), whereas the association in females was close to null (HR<sub>Q4 vs. Q1</sub> = 1.03, 95% CI: 0.84, 1.27;  $P_{\text{trend}}$  = 0.7). Median intakes of fructose ranged from 0.9%E in the lowest quartile to 3.4%E in the highest quartile for males, and from 1.2 to 3.5%E, respectively, in females.

The two PCs identified in the original search reported positive and significant relationships between the intake of fructose in isocaloric exchange with other macronutrients and CVD incidence (TLGS, Bahadoran et al., 2017) or mortality (NIH-AARP, Tasevska et al., 2014). However, the relationship was only observed in males in the NIH-AARP cohort and the TLGS cohort was at high risk of bias (tier 3) for this exposure and endpoint. The Panel concluded that the available BoE did not support a positive relationship between the intake of fructose in isocaloric exchange with other macronutrients and risk of

CVDs. The Panel considered, however, that the new PC could change the conclusion of the preliminary uncertainty analysis, and therefore will be incorporated into the scientific assessment.

#### 4.2.6.4. Sugar-sweetened beverages

sQ4.6. SSBs and risk of cardiovascular diseases		PCs (n)	
LoE	Endpoints	New	Original
<b>LoE1. Standalone (main)</b>	Incidence and mortality: CVD (composite endpoint), CHD or stroke	6	6
<b>LoE2. Complementary</b>	Risk of obesity	sQ4.1	
<b>LoE3. Complementary</b>	Risk of Type 2 diabetes mellitus	sQ4.3	
<b>LoE4. Complementary</b>	Risk of dyslipidaemia	sQ4.4	
<b>LoE5. Complementary</b>	Risk of hypertension	sQ4.5	
<b>LoE6. Complementary</b>	Incidence of hyperuricemia/uric acid	LoE3 for sQ4.5	

**LoE1. Standalone (main): Incidence and mortality: CVD (composite endpoint), CHD or stroke. PCs.** Four PCs investigated the relationship between SSBs consumption and CVDs (composite endpoint) incidence (CTS, Pacheco et al., 2020) or mortality (EPIC-Multicentre, Mullee et al., 2019; NHS, HPFS, Malik et al., 2019), of which CTS and the EPIC-Multicentre study also reported on CHD and stroke as separate endpoints. The HPP (Keller et al., 2020), a pooled analysis of seven individual studies, and REGARDS (Collin et al., 2019) reported on CHD incidence and mortality, respectively. The NHS and HPFS cohorts were also identified in the original search for the same subquestion, but reported on stroke incidence and CHD incidence (HPFS).

Most studies analysed SSBs consumption as a categorical variable using the standard multivariate method for energy adjustment, and therefore did not keep TEI constant. The exception to this was the REGARDS study that used the energy density model without further adjustment for energy. In all PCs, BMI was included as a covariate in the adjustment strategy. HPP, NHS, HPFS and REGARDS also investigated the exposure as a continuous variable using the standard multivariate (energy-adjusted) model or nutrient density model (REGARDS), therefore keeping TEI constant.

In the EPIC-Multicentre study, 324,980 participants from seven European countries were followed up for a mean of 16.4 years during which period there were 5,867 (1.8%) cardiovascular deaths. The relationship between the intake of SSBs and CVD mortality was positive (non-significant), with those in the highest category of intake, consuming  $\geq 2$  servings/day (serving size = 250 ml), having a HR (95% CI) of 1.11 (0.95, 1.30) compared with those in the lowest category of intake ( $< 1$  serving/month). Similarly, the relationship was positive (non-significant) for CHD and stroke mortality, but the association was stronger for stroke ( $HR_{C4 \text{ vs. } C1} = 1.19$ , 95% CI: 0.97, 1.47) and more attenuated for CHD ( $HR_{C4 \text{ vs. } C1} = 1.04$ , 95% CI: 0.87, 1.23).

The CTS cohort of 106,178 female teachers in the USA, with a mean (SD) age of 52.1 (13.4) years, was followed up for 20 years, during which period there were 8,848 (8.3%) incident cases of CVD, 2,677 (2.5%) incident cases of CHD, and 5,258 (4.95%) incident cases of stroke. Mean intakes of SSBs, assessed at baseline using food frequency questionnaires, ranged from 0 ml/day in the lowest category to  $\sim 400$  ml/day in the highest. There was a positive relationship between SSBs consumption and incidence of CVD as composite endpoint or as CHD and stroke separately, which was statistically significant for CVD (composite endpoint) ( $HR_{C4 \text{ vs. } C1} = 1.19$ , 95% CI: 1.06, 1.34;  $P_{\text{trend}} = 0.016$ ) and stroke ( $HR_{C4 \text{ vs. } C1} = 1.21$ , 95% CI: 1.04, 1.41;  $P_{\text{trend}} = 0.056$ ).

Malik et al. (2019) reported on two individual US cohorts, the NHS, a cohort of 80,647 female nurses aged 30 to 55 years, and the HPFS, a cohort of 37,716 male health professionals aged 40–75 years, which were followed up for 34 and 28 years, respectively. During the follow-up period there was a total of 4,139 (5.13%) CVD-related deaths documented in the NHS cohort and a total of 3,757 (9.96%) CVD-related deaths in the HPFS cohort. The categories of intake ranged from less than one serving per month in the lowest category to greater than two servings per day in the highest category of intake (serving size = 355 ml). The relationship between SSBs consumption and CVD mortality was positive in both cohorts, with a greater association in the NHS ( $HR_{C5 \text{ vs. } C1} = 1.37$ , 95% CI: 1.16, 1.62;  $P_{\text{trend}} < 0.0001$ ) compared with the HPFS ( $HR_{C5 \text{ vs. } C1} = 1.19$ , 95% CI: 0.95, 1.49;  $P_{\text{trend}} = 0.02$ ). When SSBs consumption was analysed as a continuous variable, with adjustment for energy in the multivariate

model, and therefore TEI being kept constant, the association was statistically significant in both cohorts.

The HPP, a pooled analysis of seven US cohorts (ARIC, ATBC, HPFS, IWHS, NHS'80, NHS'86, WHS), included, in total, 284,345 individuals with a mean age of 54.3 years, who were followed up for a median of 8.2 years, during which period a total of 4,248 (1.49%) CHD events occurred. The daily median intake of SSBs was 47.9 ml and SSBs consumption was categorised in servings per day, with those consuming less than one serving in the first, and lowest category, to those consuming greater than two servings per day in the third, and highest, category of intake (serving size = 355 ml). There was a positive (non-significant) relationship observed between the intake of SSBs and CHD incidence, with the HR (95% CI) for the highest vs. the lowest categories of intake being 1.14 (0.93, 1.40). In the continuous analysis, when TEI was kept constant, the association was statistically significant (per 355 ml/d increase HR = 1.08; 95% CI: 1.02, 1.13).

The REGARDS cohort reported on 13,440 participants from the USA aged 45 years or over, who were followed up for a mean of 6 years, during which period there were, in total, 168 (1.25%) CHD-related deaths. Results for the categorical analysis are only reported for sugary beverages (combination of SSBs and FJs), while for the continuous analysis results are reported for sugary beverages combined and separately for SSBs and FJs. The daily median (IQR) intake of sugary beverages was 6.3%E (2.1–11.9%E) for which the equivalent in g/day was 231 (70.5–424.9), while for SSBs the median intake was 1.3 (0.2–6.1), the equivalent of 50.5 (6–232.2) g/day. The relationship between the intake of sugary beverages and CHD mortality was positive (non-significant), with the HR (95% CI) for the highest ( $\geq 10\%$ E) vs. the lowest (0 to  $< 5\%$ E) categories of intake being 1.44 (0.97, 2.15) and 1.15 (0.97, 1.37) per 355 ml/day increase in the continuous analysis. Similarly, the relationship for SSBs consumption was also positive (non-significant) with the HR (95% CI) being 1.11 (0.90, 1.39) per 355 ml/day increase in the continuous analysis.

The Panel concluded that the available BoE did not support a positive relationship between the intake of SSBs and risk of CVDs. This was based on six PCs that reported mixed results (MDCS, Sonestedt et al., 2015; NHS, Bernstein et al., 2012; HPFS, de Koning et al., 2012; Bernstein et al., 2012; JPHC, Eshak et al., 2012; Framingham Offspring, Pase et al., 2017; COSM, Rahman et al., 2015) and were heterogenous in the endpoint they reported on [i.e. one reports on CVD incidence (composite endpoint), three on CHD incidence, five on stroke incidence and one on heart failure incidence]. The Panel noted that all six new PCs identified through the update of the literature reported a positive relationship between the intake of SSBs and CVDs incidence or mortality. The Panel considers that the new PCs could change the conclusion of the preliminary uncertainty analysis, and therefore will be incorporated into the scientific assessment.

#### 4.2.6.5. Fruit juices

<b>sQ5.6. FJs and risk of cardiovascular diseases</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence and mortality: CVD (composite endpoint), CHD or stroke	2	3
<b>LoE2. Complementary</b>	Risk of obesity	sQ5.1	
<b>LoE3. Complementary</b>	Risk of Type 2 diabetes mellitus	sQ5.3	
<b>LoE4. Complementary</b>	Risk of dyslipidaemia	sQ5.4	
<b>LoE5. Complementary</b>	Risk of hypertension	sQ5.5	
<b>LoE6. Complementary</b>	Incidence of hyperuricemia/uric acid	LoE3 for sQ5.5	

**LoE1. Standalone (main): Incidence and mortality: CVD (composite endpoint), CHD or stroke. PCs.** Two PCs investigated the relationship between FJs consumption and CHD incidence (EPIC-NL, Scheffers et al., 2019) or mortality (REGARDS, Collin et al., 2019). The EPIC-NL also reports on incidence of stroke and CVD incidence as a composite endpoint.

The EPIC-NL analysed FJs consumption as a categorical variable using the standard multivariate method for energy adjustment. The REGARDS cohort analysed FJs consumption as a continuous variable using the energy density model with no further adjustment for energy. Both studies adjusted for BMI.

The EPIC-NL, the Dutch contribution to the large EPIC-Multicentre study, consists of two cohorts (MORGEN and Prospect) for which individual data were pooled. In total, 34,560 participants, the majority of whom were women (74%), aged 48.8 years (mean) at baseline, were followed up for a mean of 14.6 years, during which period 3,801 (11%) CVD events, including 2,135 (6.18%) CHD and 1,135 (3.28%) stroke events, had occurred. Median (IQR) intake of FJs consumption was 40 (119) g/day. Compared with no consumption, the lowest three categories of intake of FJs consumption were inversely and significantly associated with risk of CVD (composite endpoint) incidence (HR ranging from 0.87 to 0.89), while the highest category of intake ( $\geq 8$  glasses/week; 1 glass = 150 ml) was not significantly associated with the risk of CVD incidence (HR: 0.96; 95% CI 0.84, 1.09). Similar results were reported for CHD and stroke incidence.

In the REGARDS cohort, which was briefly described in the section above for SSBs, FJ consumption was positively (non-significant) associated with increased risk of CHD mortality, with the HR (95% CI) for each additional 355 ml/day being 1.28 (0.95, 1.74). Median intake of FJs was 2.3%E (IQR: 0.5 – 6) which was the equivalent of 79.4 g/day (IQR: 16.4 – 248.8).

Based on three PCs from the original search, the Panel concluded that the available BoE did not support a positive relationship between the intake of FJs and risk of CVDs. The Panel considers that the new PCs would not change the conclusion of the preliminary uncertainty analysis, and therefore will not be incorporated into the scientific assessment.

#### 4.2.7. Pregnancy endpoints

No new studies investigating the incidence of gestational diabetes mellitus were identified. Two new PCs investigating the relationship between the intake of dietary sugars and birthweight-related endpoints (sQB) were identified. The exposures of interest investigated in these studies were total sugars and SSBs.

##### 4.2.7.1. Birthweight-related endpoints

##### 4.2.7.2. Total sugars

<b>sQ1.B Risk of adverse birthweight-related endpoints</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of LBW, SGA, HBW, LGA	0	1
<b>LoE2. Standalone (surrogate)</b>	Birthweight	1	1

**LoE2. Standalone (surrogate). Birthweight. PCs.** In a post-trial follow-up of a RCT with a two-arm parallel group design, data were pooled for 186 woman–child pairs to investigate the relationship between antenatal total sugar intake and offspring birthweight (Germany, Brei et al., 2018). Total sugars intake was assessed during early stage (15th week of gestation) and late stage (32nd week of gestation) of pregnancy through 7-day dietary records. Birth weight was collected from maternal obstetric records obtained from midwives of the obstetric clinics.

Non-significant relationships were reported between the intake of total sugars during early (negative) and late (positive) stage pregnancy and birthweight in both energy substitution (for each 1%E increase in total sugars, isocaloric, i.e. TEI held constant) and energy partition models (for each 100 kcal/day increase in total sugar, non-isocaloric, i.e. TEI not held constant) after adjusting for relevant covariates, including pre-pregnancy BMI.

Based on the BoE identified in the original literature search, the Panel concluded that the BoE did not support a positive relationship between total sugars intake and adverse effects on birthweight-related endpoints, while noting the paucity of data (only one PC; Cadmen, Lenders et al., 1997) and that the study was at moderate RoB. The Panel considered that the newly identified study would not change the conclusion of the preliminary uncertainty analysis, and therefore will not be incorporated into the scientific assessment.

#### 4.2.7.3. Added and/or free sugars

**LoE1. Standalone (main). LBW, SGA, HBW, LGA.** One PC (GeliS; Germany, Günther et al., 2019) investigated the relationship between antenatal sucrose intake and these endpoints. In the secondary cohort analysis of the GeliS trial, 1,902 eligible participants, aged between 18 and 43 years, without severe illnesses, multiple or complicated pregnancies, were recruited before or in the 12th week of gestation. Birth weight was collected from medical practices and SSBs intake was assessed during early ( $\leq 12$ th week of gestation) and late pregnancy ( $> 29$ th week of gestation) using food frequency questionnaires.

Sucrose consumption in early pregnancy was significantly associated with increased risk of having an offspring with low birthweight ( $< 2,500$  g) (OR = 1.07; 95% CI: 1.01, 1.13, per 10 g/day increase in intake), whereas the association with sucrose consumption in late pregnancy was close to null after adjustment for relevant covariates including pre-pregnancy BMI. TEI, a variable that could be related to the endpoint, was not adjusted for. For all other endpoints, the associations with sucrose consumption in both early and late pregnancy were either negative (non-significant) or null.

These observations were also reflected in the birthweight of the offspring when analysed as a continuous endpoint, with a statistically significant decrease in weight at birth by 8.27 g (95% CI: -15.83, -0.70) per each 10 g/d of sucrose in early pregnancy. Increasing sucrose intake (per 10 g/d) in late pregnancy was positively (non-significant) associated with a slight increase in birth weight by 3.72 g/serving (95% CI: -3.90, 11.34) [**LoE2. Standalone(surrogate)**].

No studies that investigated the association between added and/or free sugars, including sucrose, and birthweight-related endpoints were identified in the original literature search. The Panel considers that this study alone cannot be used to conclude on a positive relationship between the intake of added and/or free sugars and adverse effects on birthweight-related endpoints, and therefore will not be incorporated into the scientific assessment.

#### 4.2.7.4. Sugar-sweetened beverages

<b>sQ3.B Risk of adverse birthweight-related endpoints</b>			
<b>LoE</b>	<b>Endpoints</b>	<b>PCs (n)</b>	
		<b>New</b>	<b>Original</b>
<b>LoE1. Standalone (main)</b>	Incidence of LBW, SGA, HBW, LGA	1	1
<b>LoE2. Standalone (surrogate)</b>	Birthweight	1	1

**LoE1. Standalone (main). LBW, SGA, HBW, LGA.** The same PC reporting on the exposure sucrose, also investigated the relationship between antenatal SSBs intake and these endpoints (GeliS, Günther et al., 2019). The GeliS study was briefly described in the above section for the exposure sucrose.

SSBs consumption in early pregnancy was positively associated with an increased risk of having a neonate small-for-gestational age ( $< 10$ th percentile) or with low birthweight ( $< 2500$  g) (OR = 1.03; 95% CI: 0.99, 1.08, and 1.04; 95% CI: 0.99, 1.09, respectively, per each 200 ml/day increase in intake). The relationship between the consumption of SSBs in late pregnancy and both endpoints was null after adjustment for relevant covariates including pre-pregnancy BMI. TEI, a variable that could be related to the endpoint, was not adjusted for. By contrast, there was a non-significant lower risk of having a neonate large-for-gestational age ( $> 90$ th percentile) or with high birthweight ( $> 4000$  g) associated with the consumption of SSBs in early and late pregnancy.

These observations were also reflected in the birthweight of the offspring when analysed as a continuous endpoint. Per each serving of SSBs (200 ml/d) in early pregnancy, mean birthweight was -10.9 g (95% CI: -18.17, -3.64), and -8.19 g (95% CI: -16.26, -0.11) for each serving of SSBs in late pregnancy [**LoE2. Standalone (surrogate)**].

Based on the BoE identified in the original literature search, the Panel could not conclude on a positive relationship between the intake of SSBs and adverse effects on birthweight-related endpoints due to the paucity of data (only one PC, MoBA cohort, Norway, Grundt et al., 2017). The Panel considers that the newly identified study could change the conclusion of the preliminary uncertainty analysis, and therefore will be incorporated into the scientific assessment.



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## Appendix A – Search strings used for the systematic reviews

### A.1. Metabolic diseases

**Cochrane Central Register of Controlled Trials (CENTRAL), Cochrane Library. Cochrane Database of Systematic Reviews (CDSR) and Database of Abstracts of Reviews of Effects**

Date of the search: 23 July 2018.

ID	Search	Hits
#1	[mh ^sugars] or [mh ^Monosaccharides] or [mh fructose] or [mh galactose] or [mh ^Disaccharides] or [mh ^Sucrose] or [mh lactose] or [mh trehalose] or [mh ^"dietary carbohydrates"] or ([mh ^glucose] and ([mh ^Food] or [mh Diet] or [mh Eating] or [mh "Energy intake"])) or [mh maltose] or [mh "dietary sugars"] or [mh "dietary sucrose"] or [mh honey] or [mh molasses] or [mh "Carbonated Beverages"] or [mh "Energy Drinks"] or [mh "Fruit and Vegetable Juices"] or [mh Beverages/AE] or [mh Candy] or [mh Chocolate] or ((sugar*:ti,ab or sucrose*:ti,ab,kw or fructose*:ti,ab,kw or galactose*:ti,ab,kw or glucose*:ti or lactose*:ti,ab,kw or trehalose*:ti,ab,kw or maltose*:ti,ab,kw) and (diet:ti,ab,kw or diets:ti,ab,kw or dieta*:ti,ab,kw or diete*:ti,ab,kw)) or (glucose* near/5 (diet or diets or dieta* or diete*)):ti,ab,kw or ((sugar* or sucrose* or fructose* or galactose* or glucose* or lactose* or trehalose* or maltose*) near/5 (intak* or consum* or feed* or food or foods or supplement*)):ti,ab,kw or disaccharide*:ti,ab,kw or 'di saccharide':ti,ab,kw or 'di saccharides':ti,ab,kw or monosaccharide*:ti,ab,kw or 'mono saccharide':ti,ab,kw or 'mono saccharides':ti,ab,kw or syrup*:ti,ab,kw or honey:ti,ab,kw or candy:ti,ab,kw or candies:ti,ab,kw or sweet:ti,ab,kw or sweets:ti,ab,kw or sweetened:ti,ab,kw or pastry:ti,ab,kw or pastries:ti,ab,kw or confection*:ti,ab,kw or patisserie:ti,ab,kw or softdrink*:ti,ab,kw or softbeverage*:ti,ab,kw or ((soft or fizzy or carbonated or soda or energy or sports or sport or sugar* or fruit*) near/5 (drink* or beverage*)):ti,ab,kw or ((ssbs:ti,ab,kw or ssds:ti,ab,kw or ssb:ti,ab,kw or ssd:ti,ab,kw) and (beverage*:ti,ab,kw or soda*:ti,ab,kw or drink*:ti,ab,kw)) or juice*:ti,ab,kw or smoothie*:ti,ab,kw	20057
#2	[mh ^"Adipose Tissue"] or [mh "Abdominal Fat"] or [mh ^"Body Weights and Measures"] or [mh "Body Fat Distribution"] or [mh Adiposity] or [mh "Body Mass Index"] or [mh ^"Body Size"] or [mh ^"Body Weight"] or [mh "Body Weight Changes"] or [mh Overweight] or [mh ^Obesity] or [mh "Obesity, Morbid"] or [mh "Pediatric Obesity"] or [mh "Obesity, Abdominal"] or [mh "Sagittal Abdominal Diameter"] or [mh "Waist Circumference"] or [mh "Body Composition"] or [mh ^"Body Constitution"] or adipos*:ti,ab,kw or ((fat or fats) near/5 (pad or pads or body)):ti,ab,kw or (fatty near/5 tissue):ti,ab,kw or ((abdominal or intraabdominal or distribut* or ectopic) near/5 fat):ti,ab,kw or (weight near/5 (gain* or loss* or chang* or reduc* or maint* or watch* or variation* or control* or body or lean or increm*)):ti,ab,kw or 'waist circumference':ti,ab,kw or 'abdominal diameter':ti,ab,kw or obese*:ti,ab,kw or obesi*:ti,ab,kw or obeso*:ti,ab,kw or overweight*:ti,ab,kw or (body near/5 (size or mass or composition* or constitution*)):ti,ab,kw or bmi:ti,ab,kw	95441
#3	#1 and #2 Publication Year from 2011 to 2018	4389
#4	[mh animals] not [mh humans]	8290
#5	#3 not #4 in Cochrane Reviews (Reviews and Protocols), Other Reviews and Trials	4355
#6	[mh ^sugars] or [mh ^Monosaccharides] or [mh fructose] or [mh galactose] or [mh ^Disaccharides] or [mh ^Sucrose] or [mh lactose] or [mh trehalose] or [mh ^"dietary carbohydrates"] or ([mh ^glucose] and ([mh ^Food] or [mh Diet] or [mh Eating] or [mh "Energy intake"])) or [mh maltose] or [mh "dietary sugars"] or [mh "dietary sucrose"] or [mh honey] or [mh molasses] or [mh "Carbonated Beverages"] or [mh "Energy Drinks"] or [mh "Fruit and Vegetable Juices"] or [mh Beverages/AE] or [mh Candy] or [mh Chocolate] or ((sugar*:ti,ab or sucrose*:ti,ab,kw or fructose*:ti,ab,kw or galactose*:ti,ab,kw or glucose*:ti or lactose*:ti,ab,kw or trehalose*:ti,ab,kw or maltose*:ti,ab,kw)	20057

	and (diet:ti,ab,kw or diets:ti,ab,kw or dieta*:ti,ab,kw or diete*:ti,ab,kw)) or (glucose* near/5 (diet or diets or dieta* or diete*)):ti,ab,kw or ((sugar* or sucrose* or fructose* or galactose* or glucose* or lactose* or trehalose* or maltose*) near/5 (intak* or consum* or feed* or food or foods or supplement*)):ti,ab,kw or disaccharide*:ti,ab,kw or 'di saccharide':ti,ab,kw or 'di saccharides':ti,ab,kw or monosaccharide*:ti,ab,kw or 'mono saccharide':ti,ab,kw or 'mono saccharides':ti,ab,kw or syrup*:ti,ab,kw or honey:ti,ab,kw or candy:ti,ab,kw or candies:ti,ab,kw or sweet:ti,ab,kw or sweets:ti,ab,kw or sweetened:ti,ab,kw or pastry:ti,ab,kw or pastries:ti,ab,kw or confection*:ti,ab,kw or patisserie:ti,ab,kw or softdrink*:ti,ab,kw or softbeverage*:ti,ab,kw or ((soft or fizzy or carbonated or soda or energy or sports or fruit* or sport or sugar*) near/5 (drink* or beverage*)):ti,ab,kw or ((ssbs:ti,ab,kw or ssds:ti,ab,kw or ssb:ti,ab,kw or ssd:ti,ab,kw) and (beverage*:ti,ab,kw or soda*:ti,ab,kw or drink*:ti,ab,kw)) or juice*:ti,ab,kw or smoothie*:ti,ab,kw	
#7	[mh "Cardiovascular Diseases"] or [mh "Cardiovascular System"] or [mh "Blood Pressure"] or [mh ^Cholesterol] or [mh "Cholesterol, HDL"] or [mh "Cholesterol, LDL"] or [mh "Cholesterol, VLDL"] or [mh Dyslipidemias] or [mh Hyperlipidemias] or [mh Hypercholesterolemia] or [mh Hyperlipoproteinemias] or [mh Lipidsh] or [mh Triglycerides] or [mh ^Lipoproteins] or [mh Apolipoproteins] or apoplex*:ti,ab,kw or 'acute coronary syndrome':ti,ab,kw or angina*:ti,ab,kw or stenocardia:ti,ab,kw or ((heart or coronaryOR cardiac) near/5 (disease* or disorder* or event* or risk* or complication* or outcome* or morbidit* or mortalit* or death* or failure*)):ti,ab,kw or chd:ti,ab,kw or chds:ti,ab,kw or (('heart muscle' or 'cardiac muscle' or myocardial or myocardium or cardiac or coronary or heart or transient or cardiomyopath*) near/5 (ischemi* or ischaemi*)):ti,ab,kw or ((myocardial or heart) near/5 (infarct* or attack)):ti,ab,kw or stemi:ti,ab,kw or nstemi:ti,ab,kw or stroke*:ti,ab,kw or 'blood pressure':ti,ab,kw or 'arterial pressure':ti,ab,kw or diastolic:ti,ab,kw or systolic:ti,ab,kw or bloodpressure:ti,ab,kw or prehypertens*:ti,ab,kw or hypertens*:ti,ab,kw or atherosclero*:ti,ab,kw or 'ldl c':ti,ab,kw or 'hdl c':ti,ab,kw or 'alpha-lipoprotein cholesterol':ti,ab,kw or cholesterol*:ti,ab,kw or hypercholest*:ti,ab,kw or hypertriglycer*:ti,ab,kw or dyslipidemi*:ti,ab,kw or Dyslipidaemi*:ti,ab,kw or dyslipoproteinemi*:ti,ab,kw or hyperlipidemi*:ti,ab,kw or hyperlipidaemi*:ti,ab,kw or hyperlipemi*:ti,ab,kw or lipidemi*:ti,ab,kw or lipidaem*:ti,ab,kw or lipemi*:ti,ab,kw or hyperlipoprotein*:ti,ab,kw or lipid:ti,ab,kw or lipids:ti,ab,kw or lipoprotein*:ti,ab,kw or triglycerid*:ti,ab,kw or triacylglycerol:ti,ab,kw or 'fasting tg':ti,ab,kw or apolipoprotein*:ti,ab,kw or apob100:ti,ab,kw or apob:ti,ab,kw or 'apo b':ti,ab,kw or 'apo b100':ti,ab,kw	266961
#8	#6 and #7 Publication Year from 2013 to 2018	2621
#9	[mh animals] not [mh humans]	8290
#10	#8 not #9 in Cochrane Reviews (Reviews and Protocols), Other Reviews and Trials	2600
#11	[mh ^sugars] or [mh ^Monosaccharides] or [mh fructose] or [mh galactose] or [mh ^Disaccharides] or [mh ^Sucrose] or [mh lactose] or [mh trehalose] or [mh ^"dietary carbohydrates"] or ([mh ^glucose] and ([mh ^Food] or [mh Diet] or [mh Eating] or [mh "Energy intake"])) or [mh maltose] or [mh "dietary sugars"] or [mh "dietary sucrose"] or [mh honey] or [mh molasses] or [mh "Carbonated Beverages"] or [mh "Energy Drinks"] or [mh "Fruit and Vegetable Juices"] or [mh Beverages/AE] or [mh Candy] or [mh Chocolate] or ((sugar*:ti,ab or sucrose*:ti,ab,kw or fructose*:ti,ab,kw or galactose*:ti,ab,kw or glucose*:ti or lactose*:ti,ab,kw or trehalose*:ti,ab,kw or maltose*:ti,ab,kw) and (diet:ti,ab,kw or diets:ti,ab,kw or dieta*:ti,ab,kw or diete*:ti,ab,kw)) or (glucose* near/5 (diet or diets or dieta* or diete*)):ti,ab,kw or ((sugar* or sucrose* or fructose* or galactose* or glucose* or lactose* or trehalose* or maltose*) near/5 (intak* or consum* or feed* or food or foods or supplement*)):ti,ab,kw or disaccharide*:ti,ab,kw or 'di saccharide':ti,ab,kw or 'di saccharides':ti,ab,kw or monosaccharide*:ti,ab,kw or 'mono saccharide':ti,ab,kw or 'mono saccharides':ti,ab,kw or syrup*:ti,ab,kw or honey:ti,ab,kw or candy:ti,ab,kw or candies:ti,ab,kw or sweet:ti,ab,kw or sweets:ti,ab,kw or sweetened:ti,ab,kw or pastry:ti,ab,kw or pastries:ti,ab,kw or confection*:ti,ab,kw or patisserie:ti,ab,kw or softdrink*:ti,ab,kw or softbeverage*:ti,ab,kw or ((soft or fizzy or carbonated or soda or energy or	20057



	sports or fruit* or sport or sugar*) near/5 (drink* or beverage*)):ti,ab,kw or ((ssbs:ti,ab,kw or ssds:ti,ab,kw or ssb:ti,ab,kw or ssd:ti,ab,kw) and (beverage*:ti,ab,kw or soda*:ti,ab,kw or drink*:ti,ab,kw)) or juice*:ti,ab,kw or smoothie*:ti,ab,kw	
#12	[mh ^"Fatty Liver"] or [mh "Non-alcoholic Fatty Liver Disease"] or [mh ^"Liver Cirrhosis"] or [mh "Liver Failure"] or steatohepatit*:ti,ab,kw or steatos*:ti,ab,kw or nafld:ti,ab,kw or nash:ti,ab,kw or ((fat or fatty) near/5 (liver or hepat*)):ti,ab,kw or cirrhos*:ti,ab,kw or ((fibros* or failure* or insufficienc*) near/5 (liver or hepat*)):ti,ab,kw	12816
#13	#11 and #12	330
#14	[mh animals] not [mh humans]	8290
#15	#13 not #14 in Cochrane Reviews (Reviews and Protocols), Other Reviews and Trials	327
#16	[mh "Birth Weight"] or [mh "Fetal Weight"] or [mh "Gestational Age"] or [mh "Infant, Low Birth Weight"] or (weight:ti,ab,kw and (birth:ti,ab,kw or births:ti,ab,kw or newborn*:ti,ab,kw or new born*:ti,ab,kw or neonat*:ti,ab,kw or fetal:ti,ab,kw or foetal:ti,ab,kw or fetus:ti,ab,kw or foetus:ti,ab,kw)) or macrosomia*:ti,ab,kw or macrosomatia*:ti,ab,kw or (SGA:ti,ab,kw or LGA:ti,ab,kw or "small for date":ti,ab,kw or "large for date":ti,ab,kw) and (infant*:ti,ab,kw or neonat*:ti,ab,kw or newborn*:ti,ab,kw or new born*:ti,ab,kw or child:ti,ab,kw or children:ti,ab,kw or baby:ti,ab,kw or babies:ti,ab,kw) or (gestation* near/5 (time or age))	17088
#17	[mh ^sugars] or [mh ^Monosaccharides] or [mh fructose] or [mh galactose] or [mh ^Disaccharides] or [mh ^Sucrose] or [mh lactose] or [mh trehalose] or [mh ^"dietary carbohydrates"] or ([mh ^glucose] and ([mh ^Food] or [mh Diet] or [mh Eating] or [mh "Energy intake"]))) or [mh maltose] or [mh "dietary sugars"] or [mh "dietary sucrose"] or [mh honey] or [mh molasses] or [mh "Carbonated Beverages"] or [mh "Energy Drinks"] or [mh "Fruit and Vegetable Juices"] or [mh Beverages/AE] or [mh Candy] or [mh Chocolate] or ((sugar*:ti,ab or sucrose*:ti,ab,kw or fructose*:ti,ab,kw or galactose*:ti,ab,kw or glucose*:ti or lactose*:ti,ab,kw or trehalose*:ti,ab,kw or maltose*:ti,ab,kw) and (diet:ti,ab,kw or diets:ti,ab,kw or dieta*:ti,ab,kw or diete*:ti,ab,kw)) or (glucose* near/5 (diet or diets or dieta* or diete*)):ti,ab,kw or ((sugar* or sucrose* or fructose* or galactose* or glucose* or lactose* or trehalose* or maltose*) near/5 (intak* or consum* or feed* or food or foods or supplement*)):ti,ab,kw or disaccharide*:ti,ab,kw or 'di saccharide':ti,ab,kw or 'di saccharides':ti,ab,kw or monosaccharide*:ti,ab,kw or 'mono saccharide':ti,ab,kw or 'mono saccharides':ti,ab,kw or syrup*:ti,ab,kw or honey:ti,ab,kw or candy:ti,ab,kw or candies:ti,ab,kw or sweet:ti,ab,kw or sweets:ti,ab,kw or sweetened:ti,ab,kw or pastry:ti,ab,kw or pastries:ti,ab,kw or confection*:ti,ab,kw or patisserie:ti,ab,kw or softdrink*:ti,ab,kw or softbeverage*:ti,ab,kw or ((soft or fizzy or carbonated or soda or energy or sports or fruit* or sport or sugar*) near/5 (drink* or beverage*)):ti,ab,kw or ((ssbs:ti,ab,kw or ssds:ti,ab,kw or ssb:ti,ab,kw or ssd:ti,ab,kw) and (beverage*:ti,ab,kw or soda*:ti,ab,kw or drink*:ti,ab,kw)) or juice*:ti,ab,kw or smoothie*:ti,ab,kw	20057
#18	#16 and #17	461
#19	#18 in Cochrane Reviews (Reviews and Protocols), Other Reviews and Trials	459
#20	[mh animals] not [mh humans]	8290
#21	#19 not #20 in Cochrane Reviews (Reviews and Protocols), Other Reviews and Trials	446
#22	[mh ^sugars] or [mh ^Monosaccharides] or [mh fructose] or [mh galactose] or [mh ^Disaccharides] or [mh ^Sucrose] or [mh lactose] or [mh trehalose] or [mh ^"dietary carbohydrates"] or ([mh ^glucose] and ([mh ^Food] or [mh Diet] or [mh Eating] or [mh "Energy intake"]))) or [mh maltose] or [mh "dietary sugars"] or [mh "dietary sucrose"] or [mh honey] or [mh molasses] or [mh "Carbonated Beverages"] or [mh "Energy Drinks"] or [mh "Fruit and Vegetable Juices"] or [mh Beverages/AE] or [mh Candy] or [mh Chocolate] or ((sugar*:ti,ab or sucrose*:ti,ab,kw or fructose*:ti,ab,kw or galactose*:ti,ab,kw or glucose*:ti or lactose*:ti,ab,kw or trehalose*:ti,ab,kw or maltose*:ti,ab,kw) and (diet:ti,ab,kw or diets:ti,ab,kw or dieta*:ti,ab,kw or diete*:ti,ab,kw)) or (glucose* near/5 (diet or diets or dieta* or diete*)):ti,ab,kw or ((sugar* or sucrose* or fructose* or galactose* or glucose* or lactose* or trehalose* or	20057

	maltose*) near/5 (intak* or consum* or feed* or food or foods or supplement*):ti,ab,kw or disaccharide*:ti,ab,kw or 'di saccharide':ti,ab,kw or 'di saccharides':ti,ab,kw or monosaccharide*:ti,ab,kw or 'mono saccharide':ti,ab,kw or 'mono saccharides':ti,ab,kw or syrup*:ti,ab,kw or honey:ti,ab,kw or candy:ti,ab,kw or candies:ti,ab,kw or sweet:ti,ab,kw or sweets:ti,ab,kw or sweetened:ti,ab,kw or pastry:ti,ab,kw or pastries:ti,ab,kw or confection*:ti,ab,kw or patisserie:ti,ab,kw or softdrink*:ti,ab,kw or softbeverage*:ti,ab,kw or ((soft or fizzy or carbonated or soda or energy or sports or fruit* or sport or sugar*) near/5 (drink* or beverage*)):ti,ab,kw or ((ssbs:ti,ab,kw or ssds:ti,ab,kw or ssb:ti,ab,kw or ssd:ti,ab,kw) and (beverage*:ti,ab,kw or soda*:ti,ab,kw or drink*:ti,ab,kw)) or juice*:ti,ab,kw or smoothie*:ti,ab,kw	
#23	[mh Hyperuricemia] or [mh Gout] or [mh "Uric Acid"] or gout:ti,ab,kw or gouty:ti,ab,kw or uric*:ti,ab,kw or hyperuricemi*:ti,ab,kw or hyperuricaemi*:ti,ab,kw or hyperuricacide*:ti,ab,kw or hyperuricacidaemi*:ti,ab,kw	3941
#24	#22 and #23	210
#25	[mh animals] not [mh humans]	8290
#26	#24 not #25 in Cochrane Reviews (Reviews and Protocols), Other Reviews and Trials	207
#27	[mh ^sugars] or [mh ^Monosaccharides] or [mh fructose] or [mh galactose] or [mh ^Disaccharides] or [mh ^Sucrose] or [mh lactose] or [mh trehalose] or [mh maltose] or [mh "dietary sugars"] or [mh "dietary sucrose"] or [mh honey] or [mh molasses] or [mh "Carbonated Beverages"] or [mh "Energy Drinks"] or [mh "Fruit and Vegetable Juices"] or [mh Beverages/AE] or [mh Candy] or [mh Chocolate] or ((sugar*:ti,ab,kw or sucrose*:ti,ab,kw or fructose*:ti,ab,kw or galactose*:ti,ab,kw or lactose*:ti,ab,kw or trehalose*:ti,ab,kw or maltose*:ti,ab,kw) and (diet:ti,ab,kw or diets:ti,ab,kw or dieta*:ti,ab,kw or diete*:ti,ab,kw)) or ((sugar* or sucrose* or fructose* or galactose* or lactose* or trehalose* or maltose*) near/5 (intak* or consum* or feed* or food or foods or supplement*)):ti,ab,kw or disaccharide*:ti,ab,kw or 'di saccharide':ti,ab,kw or 'di saccharides':ti,ab,kw or monosaccharide*:ti,ab,kw or 'mono saccharide':ti,ab,kw or 'mono saccharides':ti,ab,kw or syrup*:ti,ab,kw or honey:ti,ab,kw or candy:ti,ab,kw or candies:ti,ab,kw or sweet:ti,ab,kw or sweets:ti,ab,kw or sweetened:ti,ab,kw or pastry:ti,ab,kw or pastries:ti,ab,kw or confection*:ti,ab,kw or patisserie:ti,ab,kw or softdrink*:ti,ab,kw or softbeverage*:ti,ab,kw or ((soft or fizzy or carbonated or soda or energy or sports or fruit* or sport or sugar*) near/5 (drink* or beverage*)):ti,ab,kw or ((ssbs:ti,ab,kw or ssds:ti,ab,kw or ssb:ti,ab,kw or ssd:ti,ab,kw) and (beverage*:ti,ab,kw or soda*:ti,ab,kw or drink*:ti,ab,kw)) or juice*:ti,ab,kw or smoothie*:ti,ab,kw	12390
#28	[mh "Diabetes Mellitus, Type 2"] or [mh ^Hyperinsulinism] or [mh "Insulin Resistance"] or [mh "Metabolic Syndrome"] or [mh "Blood Glucose"] or [mh Insulin/BL] or [mh Hyperglycemia] or [mh "Glucose Intolerance"] or [mh "Carbohydrate Metabolism"] or [mh "Glycated Hemoglobin A"] or [mh Fructosamine] or [mh ^"Metabolic Diseases"] or (diabet* near/5 ("type 2" or "type ii" or type2 or typeii)):ti,ab,kw or (((late or adult* or matur* or slow* or stabl*) near/5 onset):ti,ab,kw and diabet*:ti,ab,kw) or (((non insulin" or noninsulin) near/1 depend*):ti,ab,kw and diabet*:ti,ab,kw) or hyperinsulinism:ti,ab,kw or hyperinsulinemia:ti,ab,kw or ((resistan* or sensitivity or tolerance or intolerance or control or fasting) near/5 insulin):ti,ab,kw or "metabolic syndrome":ti,ab,kw or (blood near/5 glucose):ti,ab,kw or "metabolic disorder":ti,ab,kw or "metabolic disorders":ti,ab,kw or hyperglycemia*:ti,ab,kw or ((tolerance or intolerance or fasting) near/5 glucose):ti,ab,kw or ((glycated or glycosylated) near/5 (hemoglobin or haemoglobin)):ti,ab,kw or "hemoglobin a":ti,ab,kw or "haemoglobin a":ti,ab,kw or "hemoglobin a1c":ti,ab,kw or "haemoglobin a1c":ti,ab,kw or "hemoglobin a1c":ti,ab,kw or "haemoglobin a1c":ti,ab,kw or hba1c:ti,ab,kw or hba1:ti,ab,kw or "hba 1c":ti,ab,kw or "hb a1c":ti,ab,kw or "hb a 1c":ti,ab,kw or (fructosamine near/5 (blood or serum or plasma or level)):ti,ab,kw or (glucose near/5 (homeostasis or homeostasis)):ti,ab,kw or niddm:ti,ab,kw	62687
#29	#27 and #28	2210



#30	[mh animals] not [mh humans]	8290
#31	#29 not #30 in Cochrane Reviews (Reviews and Protocols), Other Reviews and Trials	2190
#32	[mh ^sugars] or [mh ^Monosaccharides] or [mh fructose] or [mh galactose] or [mh ^Disaccharides] or [mh ^Sucrose] or [mh lactose] or [mh trehalose] or [mh maltose] or [mh "dietary sugars"] or [mh "dietary sucrose"] or [mh honey] or [mh molasses] or [mh "Carbonated Beverages"] or [mh "Energy Drinks"] or [mh "Fruit and Vegetable Juices"] or [mh Beverages/AE] or [mh Candy] or [mh Chocolate] or ((sugar*:ti,ab or sucrose*:ti,ab,kw or fructose*:ti,ab,kw or galactose*:ti,ab,kw or lactose*:ti,ab,kw or trehalose*:ti,ab,kw or maltose*:ti,ab,kw) and (diet:ti,ab,kw or diets:ti,ab,kw or dieta*:ti,ab,kw or diete*:ti,ab,kw)) or ((sugar* or sucrose* or fructose* or galactose* or lactose* or trehalose* or maltose*) near/5 (intak* or consum* or feed* or food or foods or supplement*)):ti,ab,kw or disaccharide*:ti,ab,kw or 'di saccharide':ti,ab,kw or 'di saccharides':ti,ab,kw or monosaccharide*:ti,ab,kw or 'mono saccharide':ti,ab,kw or 'mono saccharides':ti,ab,kw or syrup*:ti,ab,kw or honey:ti,ab,kw or candy:ti,ab,kw or candies:ti,ab,kw or sweet:ti,ab,kw or sweets:ti,ab,kw or sweetened:ti,ab,kw or pastry:ti,ab,kw or pastries:ti,ab,kw or confection*:ti,ab,kw or patisserie:ti,ab,kw or softdrink*:ti,ab,kw or softbeverage*:ti,ab,kw or ((soft or fizzy or carbonated or soda or energy or sports or fruit* or sport or sugar*) near/5 (drink* or beverage*)):ti,ab,kw or ((ssbs:ti,ab,kw or ssds:ti,ab,kw or ssb:ti,ab,kw or ssd:ti,ab,kw) and (beverage*:ti,ab,kw or soda*:ti,ab,kw or drink*:ti,ab,kw)) or juice*:ti,ab,kw or smoothie*:ti,ab,kw	12390
#33	((Gestational:ti,ab,kw or pregnan*:ti,ab,kw) and diabet*) or GDM:ti,ab,kw or [mh "Diabetes, Gestational"] or [mh "Pregnancy in Diabetes"]	2968
#34	#33 and #32 in Cochrane Reviews (Reviews and Protocols), Other Reviews and Trials	89
#35	#34 or #31 or #26 or #21 or #15 or #10 or #5 in Cochrane Reviews (Reviews and Protocols), Other Reviews and Trials	7151

## Embase

Date of the search: 23 July 2018

No.	Query	Results
#106	#12 OR #40 OR #52 OR #64 OR #76 OR #93 OR #105	11392
#105	#104 AND #100 AND [english]/lim	185
#104	#103 NOT #95	412
#103	#102 NOT #94	620
#102	#96 AND #101	712
#101	'pregnancy diabetes mellitus'/exp OR ((gestational:ti,ab OR pregnan*:ti,ab) AND diabet*:ti,ab) OR gdm:ti,ab	50959
#100	#97 OR #98 OR #99	7313504
#99	'cohort analysis'/exp OR 'longitudinal study'/exp OR 'prospective study'/exp OR 'follow up'/exp OR cohort*:ti,ab OR 'observational study'/exp OR prospective:ti,ab OR longitudinal:ti,ab OR observational:ti,ab OR followup:ti,ab OR 'follow up':ti,ab OR 'case control study'/exp OR 'control group'/exp OR ((nested NEAR/3 (stud* OR analys*)):ti,ab) OR (case*:ti,ab AND control*:ti,ab) OR (((participant* OR group) NEAR/3 follow*)):ti,ab) OR 'control group':ti,ab OR 'control groups':ti,ab	4116602
#98	'clinical trial'/exp OR randomized:ti,ab OR randomised:ti,ab OR placebo:ti,ab OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR 'clinical trial (topic)'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR 'triple blind procedure'/exp OR (((singl* OR doubl* OR trebl* OR tripl*) NEAR/10 (mask* OR blind* OR dumm*)):ti,ab) OR 'crossover procedure'/exp OR (((crossover OR 'cross over') NEAR/10 (study OR studies OR design* OR method* OR procedure OR comparison)):ti,ab)	4406969
#97	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR 'systematic review'/exp OR 'systematic review (topic)'/exp OR 'biomedical technology assessment'/exp OR ((systematic* NEAR/3 (review* OR overview*)):ti,ab) OR	521052

	((methodologic* NEAR/3 (review* OR overview*)):ti,ab) OR ((quantitative NEAR/3 (review* OR overview* OR syntheses*)):ti,ab) OR ((research NEAR/3 (integrati* OR overview*)):ti,ab) OR ((integrative NEAR/3 (review* OR overview*)):ti,ab) OR ((collaborative NEAR/3 (review* OR overview*)):ti,ab) OR ((pool* NEAR/3 analy*)):ti,ab) OR ((data NEAR/1 (synthes* OR extraction* OR abstraction*)):ti,ab) OR handsearch*:ti,ab OR 'hand search':ti,ab OR 'hand searches':ti,ab OR 'hand searching':ti,ab OR 'mantel haenszel':ti,ab OR peto:ti,ab OR 'der simonian':ti,ab OR dersimonian:ti,ab OR 'fixed effect':ti,ab OR 'fixed effects':ti,ab OR 'latin square':ti,ab OR 'latin squares':ti,ab OR 'meta analysis':ti,ab OR 'meta analyses':ti,ab OR 'met analysis':ti,ab OR 'met analyses':ti,ab OR metaanaly*:ti,ab OR metanaly*:ti,ab OR 'meta regression':ti,ab OR 'meta regressions':ti,ab OR metaregression*:ti,ab OR medline:ti,ab OR cochrane:ti,ab OR pubmed:ti,ab OR medlars:ti,ab OR embase:ti,ab OR cinahl:ti,ab OR cochrane:jt OR 'evidence report':jt OR ((comparative NEAR/3 (efficacy OR effectiveness)):ti,ab) OR 'outcomes research':ti,ab OR 'relative effectiveness':ti,ab OR (((indirect OR 'indirect treatment' OR 'mixed treatment') NEAR/3 comparison):ti,ab)	
#96	'sugar intake'/exp OR 'fructose intake'/exp OR 'lactose intake'/exp OR 'sugar'/exp OR 'monosaccharide'/de OR 'fructose'/exp OR 'galactose'/exp OR 'disaccharide'/de OR 'sucrose'/exp OR 'maltose'/exp OR 'lactose'/exp OR 'trehalose'/exp OR 'syrup'/exp OR 'honey'/exp OR 'molasses'/exp OR 'soft drink'/exp OR 'energy drink'/exp OR 'sports drink'/exp OR 'fruit and vegetable juice'/exp OR 'carbonated beverage'/exp OR 'sweetened beverage'/exp OR 'confectionary'/de OR 'sugar confectionary'/exp OR ((sugar*:ti,ab OR sucrose*:ti,ab OR fructose*:ti,ab OR galactose*:ti,ab OR lactose*:ti,ab OR trehalose*:ti,ab OR maltose*:ti,ab) AND (diet:ti,ab OR diets:ti,ab OR dieta*:ti,ab OR diete*:ti,ab)) OR (((sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose*) NEAR/5 (intak* OR consum* OR feed* OR food OR foods OR supplement*)):ti,ab) OR disaccharide*:ti,ab OR 'di saccharide':ti,ab OR 'di saccharides':ti,ab OR monosaccharide*:ti,ab OR 'mono saccharide':ti,ab OR 'mono saccharides':ti,ab OR syrup*:ti,ab OR honey:ti,ab OR candy:ti,ab OR candies:ti,ab OR sweet:ti,ab OR sweets:ti,ab OR sweetened:ti,ab OR pastry:ti,ab OR pastries:ti,ab OR confection*:ti,ab OR patisserie:ti,ab OR softdrink*:ti,ab OR softbeverage*:ti,ab OR (((soft OR fizzy OR carbonated OR soda OR energy OR sports OR fruit* OR sport OR sugar*) NEAR/5 (drink* OR beverage*)):ti,ab) OR ((ssbs:ti,ab OR ssds:ti,ab OR ssb:ti,ab OR ssd:ti,ab) AND (beverage*:ti,ab OR soda*:ti,ab OR drink*:ti,ab)) OR juice*:ti,ab OR smoothie*:ti,ab	272824
#95	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [note]/lim	5129395
#94	('animal'/exp OR 'animal experiment'/exp) NOT ('human experiment'/exp OR 'human'/exp)	5452052
#93	#91 AND #92 AND [english]/lim	3760
#92	#80 OR #81 OR #82	7313504
#91	#90 NOT #79	15605
#90	#89 NOT #78	19868
#89	#77 AND #88	30164
#88	#83 OR #84 OR #85 OR #86 OR #87	892755
#87	hyperglycemia*:ti,ab OR (((tolerance OR intolerance OR fasting) NEAR/5 glucose):ti,ab) OR (((glycated OR glycosylated) NEAR/5 (hemoglobin OR haemoglobin)):ti,ab) OR 'hemoglobin a':ti,ab OR 'haemoglobin a':ti,ab OR 'hemoglobin a1c':ti,ab OR 'haemoglobin a1c':ti,ab OR 'hemoglobin aic':ti,ab OR 'haemoglobin aic':ti,ab OR hba1c:ti,ab OR hba1:ti,ab OR 'hba 1c':ti,ab OR 'hb a1c':ti,ab OR 'hb a 1c':ti,ab OR ((fructosamine NEAR/5 (blood OR serum OR plasma OR level)):ti,ab) OR ((glucose NEAR/5 (homeostasis OR homeostases)):ti,ab)	240044
#86	hyperinsulinism:ti,ab OR hyperinsulinemia:ti,ab OR (((resistan* OR sensitivity OR tolerance OR intolerance OR control OR fasting) NEAR/5 insulin):ti,ab) OR 'metabolic syndrome':ti,ab OR	332019

	((blood NEAR/5 glucose):ti,ab) OR 'metabolic disorder':ti,ab OR 'metabolic disorders':ti,ab OR niddm:ti,ab	
#85	((('non-insulin' OR noninsulin) NEAR/1 depend*):ti,ab) AND diabet*:ti,ab	13995
#84	((('late OR adult* OR matur* OR slow* OR stabl*') NEAR/5 onset):ti,ab) AND diabet*:ti,ab	6832
#83	'non insulin dependent diabetes mellitus'/exp OR 'hyperinsulinism'/exp OR 'hyperinsulinemia'/exp OR 'insulin resistance'/exp OR 'metabolic syndrome x'/exp OR 'glucose blood level'/exp OR ('insulin'/exp AND 'blood'/exp) OR 'hyperglycemia'/exp OR 'glucose intolerance'/exp OR 'hemoglobin a1c'/exp OR 'fructosamine'/exp OR 'fructosamine blood level'/exp OR 'metabolic disorder'/de OR 'carbohydrate metabolism'/exp OR ((diabet* NEAR/5 ('type 2' OR 'type ii' OR type2 OR typeii)):ti,ab)	802812
#82	'cohort analysis'/exp OR 'longitudinal study'/exp OR 'prospective study'/exp OR 'follow up'/exp OR cohort*:ti,ab OR 'observational study'/exp OR prospective:ti,ab OR longitudinal:ti,ab OR observational:ti,ab OR followup:ti,ab OR 'follow up':ti,ab OR 'case control study'/exp OR 'control group'/exp OR ((nested NEAR/3 (stud* OR analys*)):ti,ab) OR (case*:ti,ab AND control*:ti,ab) OR (((participant* OR group) NEAR/3 follow*):ti,ab) OR 'control group':ti,ab OR 'control groups':ti,ab	4116602
#81	'clinical trial'/exp OR randomized:ti,ab OR randomised:ti,ab OR placebo:ti,ab OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR 'clinical trial (topic)'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR 'triple blind procedure'/exp OR (((singl* OR doubl* OR trebl* OR tripl*) NEAR/10 (mask* OR blind* OR dumm*)):ti,ab) OR 'crossover procedure'/exp OR (((crossover OR 'cross over') NEAR/10 (study OR studies OR design* OR method* OR procedure OR comparison)):ti,ab)	4406969
#80	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR 'systematic review'/exp OR 'systematic review (topic)'/exp OR 'biomedical technology assessment'/exp OR ((systematic* NEAR/3 (review* OR overview*)):ti,ab) OR ((methodologic* NEAR/3 (review* OR overview*)):ti,ab) OR ((quantitative NEAR/3 (review* OR overview* OR synthes*)):ti,ab) OR ((research NEAR/3 (integrati* OR overview*)):ti,ab) OR ((integrative NEAR/3 (review* OR overview*)):ti,ab) OR ((collaborative NEAR/3 (review* OR overview*)):ti,ab) OR ((pool* NEAR/3 analy*):ti,ab) OR ((data NEAR/1 (synthes* OR extraction* OR abstraction*)):ti,ab) OR handsearch*:ti,ab OR 'hand search':ti,ab OR 'hand searches':ti,ab OR 'hand searching':ti,ab OR 'mantel haenszel':ti,ab OR peto:ti,ab OR 'der simonian':ti,ab OR dersimonian:ti,ab OR 'fixed effect':ti,ab OR 'fixed effects':ti,ab OR 'latin square':ti,ab OR 'latin squares':ti,ab OR 'meta analysis':ti,ab OR 'meta analyses':ti,ab OR 'met analysis':ti,ab OR 'met analyses':ti,ab OR metaanaly*:ti,ab OR metanaly*:ti,ab OR 'meta regression':ti,ab OR 'meta regressions':ti,ab OR metaregression*:ti,ab OR medline:ti,ab OR cochrane:ti,ab OR pubmed:ti,ab OR medlars:ti,ab OR embase:ti,ab OR cinahl:ti,ab OR cochrane:jt OR 'evidence report':jt OR ((comparative NEAR/3 (efficacy OR effectiveness)):ti,ab) OR 'outcomes research':ti,ab OR 'relative effectiveness':ti,ab OR (((indirect OR 'indirect treatment' OR 'mixed treatment') NEAR/3 comparison):ti,ab)	521052
#79	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [note]/lim	5069089
#78	('animal'/exp OR 'animal experiment'/exp) NOT ('human experiment'/exp OR 'human'/exp)	5471354
#77	'sugar intake'/exp OR 'fructose intake'/exp OR 'lactose intake'/exp OR 'sugar'/exp OR 'monosaccharide'/de OR 'fructose'/exp OR 'galactose'/exp OR 'disaccharide'/de OR 'sucrose'/exp OR 'maltose'/exp OR 'lactose'/exp OR 'trehalose'/exp OR 'syrup'/exp OR 'honey'/exp OR 'molasses'/exp OR 'soft drink'/exp OR 'energy drink'/exp OR 'sports drink'/exp OR 'fruit and vegetable juice'/exp OR 'carbonated beverage'/exp OR 'sweetened beverage'/exp OR 'confectionary'/de OR 'sugar confectionary'/exp OR ((sugar*:ti,ab OR sucrose*:ti,ab OR fructose*:ti,ab OR galactose*:ti,ab OR lactose*:ti,ab OR trehalose*:ti,ab OR maltose*:ti,ab) AND (diet:ti,ab OR diets:ti,ab OR dieta*:ti,ab OR diete*:ti,ab)) OR (((sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose*) NEAR/5	272824

	(intak* OR consum* OR feed* OR food OR foods OR supplement*)):ti,ab) OR disaccharide*:ti,ab OR 'di saccharide':ti,ab OR 'di saccharides':ti,ab OR monosaccharide*:ti,ab OR 'mono saccharide':ti,ab OR 'mono saccharides':ti,ab OR syrup*:ti,ab OR honey:ti,ab OR candy:ti,ab OR candies:ti,ab OR sweet:ti,ab OR sweets:ti,ab OR sweetened:ti,ab OR pastry:ti,ab OR pastries:ti,ab OR confection*:ti,ab OR patisserie:ti,ab OR softdrink*:ti,ab OR softbeverage*:ti,ab OR (((soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR sugar * OR fruit*) NEAR/5 (drink* OR beverage*)):ti,ab) OR ((ssbs:ti,ab OR ssds:ti,ab OR ssb:ti,ab OR ssd:ti,ab) AND (beverage*:ti,ab OR soda*:ti,ab OR drink*:ti,ab)) OR juice*:ti,ab OR smoothie*:ti,ab	
#76	#72 AND #75 AND [english]/lim	768
#75	#74 NOT #68	1474
#74	#73 NOT #67	2136
#73	#65 AND #66	3095
#72	#69 OR #70 OR #71	7313504
#71	'cohort analysis'/exp OR 'longitudinal study'/exp OR 'prospective study'/exp OR 'follow up'/exp OR cohort*:ti,ab OR 'observational study'/exp OR prospective:ti,ab OR longitudinal:ti,ab OR observational:ti,ab OR followup:ti,ab OR 'follow up':ti,ab OR 'case control study'/exp OR 'control group'/exp OR ((nested NEAR/3 (stud* OR analys*)):ti,ab) OR (case*:ti,ab AND control*:ti,ab) OR (((participant* OR group) NEAR/3 follow*)):ti,ab) OR 'control group':ti,ab OR 'control groups':ti,ab	4116602
#70	'clinical trial'/exp OR randomized:ti,ab OR randomised:ti,ab OR placebo:ti,ab OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR 'clinical trial (topic)'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR 'triple blind procedure'/exp OR (((singl* OR doubl* OR trebl* OR tripl*) NEAR/10 (mask* OR blind* OR dumm*)):ti,ab) OR 'crossover procedure'/exp OR (((crossover OR 'cross over') NEAR/10 (study OR studies OR design* OR method* OR procedure OR comparison)):ti,ab)	4406969
#69	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR 'systematic review'/exp OR 'systematic review (topic)'/exp OR 'biomedical technology assessment'/exp OR ((systematic* NEAR/3 (review* OR overview*)):ti,ab) OR ((methodologic* NEAR/3 (review* OR overview*)):ti,ab) OR ((quantitative NEAR/3 (review* OR overview* OR synthes*)):ti,ab) OR ((research NEAR/3 (integrati* OR overview*)):ti,ab) OR ((integrative NEAR/3 (review* OR overview*)):ti,ab) OR ((collaborative NEAR/3 (review* OR overview*)):ti,ab) OR ((pool* NEAR/3 analy*)):ti,ab) OR ((data NEAR/1 (synthes* OR extraction* OR abstraction*)):ti,ab) OR handsearch*:ti,ab OR 'hand search':ti,ab OR 'hand searches':ti,ab OR 'hand searching':ti,ab OR 'mantel haenszel':ti,ab OR peto:ti,ab OR 'der simonian':ti,ab OR dersimonian:ti,ab OR 'fixed effect':ti,ab OR 'fixed effects':ti,ab OR 'latin square':ti,ab OR 'latin squares':ti,ab OR 'meta analysis':ti,ab OR 'meta analyses':ti,ab OR 'met analysis':ti,ab OR 'met analyses':ti,ab OR metaanaly*:ti,ab OR metanaly*:ti,ab OR 'meta regression':ti,ab OR 'meta regressions':ti,ab OR metaregression*:ti,ab OR medline:ti,ab OR cochrane:ti,ab OR pubmed:ti,ab OR medlars:ti,ab OR embase:ti,ab OR cinahl:ti,ab OR cochrane:jt OR 'evidence report':jt OR ((comparative NEAR/3 (efficacy OR effectiveness)):ti,ab) OR 'outcomes research':ti,ab OR 'relative effectiveness':ti,ab OR (((indirect OR 'indirect treatment' OR 'mixed treatment') NEAR/3 comparison):ti,ab)	521052
#68	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [note]/lim	5129395
#67	('animal'/exp OR 'animal experiment'/exp) NOT ('human experiment'/exp OR 'human'/exp)	5452052
#66	'sugar intake'/exp OR 'glucose intake'/exp OR 'fructose intake'/exp OR 'lactose intake'/exp OR 'sugar'/exp OR 'monosaccharide'/de OR 'fructose'/exp OR 'galactose'/exp OR 'disaccharide'/de OR 'sucrose'/exp OR 'maltose'/exp OR 'lactose'/exp OR 'trehalose'/exp OR ('glucose'/mj AND ('dietary intake'/de OR 'dietary reference intake'/exp OR 'diet'/exp OR 'food intake'/de OR 'food'/exp OR 'eating'/exp OR 'supplementation'/exp)) OR 'syrup'/exp OR 'honey'/exp OR 'molasses'/exp OR 'soft drink'/exp OR 'energy drink'/exp OR 'sports	326759

	<p>drink'/exp OR 'fruit and vegetable juice'/exp OR 'carbonated beverage'/exp OR 'sweetened beverage'/exp OR 'confectionary'/de OR 'sugar confectionary'/exp OR ((sugar*:ti,ab OR sucrose*:ti,ab OR fructose*:ti,ab OR galactose*:ti,ab OR glucose*:ti OR lactose*:ti,ab OR trehalose*:ti,ab OR maltose*:ti,ab) AND (diet:ti,ab OR diets:ti,ab OR dieta*:ti,ab OR diete*:ti,ab)) OR ((glucose* NEAR/10 (diet OR diets OR dieta* OR diete*)):ti,ab) OR (((sugar* OR sucrose* OR fructose* OR galactose* OR glucose* OR lactose* OR trehalose* OR maltose*) NEAR/5 (intak* OR consum* OR feed* OR food OR foods OR supplement*)):ti,ab) OR disaccharide*:ti,ab OR 'di saccharide':ti,ab OR 'di saccharides':ti,ab OR monosaccharide*:ti,ab OR 'mono saccharide':ti,ab OR 'mono saccharides':ti,ab OR syrup*:ti,ab OR honey*:ti,ab OR candy:ti,ab OR candies:ti,ab OR sweet:ti,ab OR sweets:ti,ab OR sweetened:ti,ab OR pastry:ti,ab OR pastries:ti,ab OR confection*:ti,ab OR patisserie:ti,ab OR softdrink*:ti,ab OR softbeverage*:ti,ab OR (((soft OR fizzy OR carbonated OR soda OR energy OR sport OR sports OR fruit* OR sugar*) NEAR/5 (drink* OR beverage*)):ti,ab) OR ((ssbs:ti,ab OR ssds:ti,ab OR ssb:ti,ab OR ssd:ti,ab) AND (beverage*:ti,ab OR soda*:ti,ab OR drink*:ti,ab)) OR juice*:ti,ab OR smoothie*:ti,ab</p>	
#65	<p>'birth weight'/exp OR 'high birth weight'/exp OR 'low birth weight'/exp OR 'small for date infant'/exp OR 'very low birth weight'/exp OR 'extremely low birth weight'/exp OR 'fetus weight'/exp OR 'gestational age'/exp OR 'tall stature'/de OR 'macrosomia'/exp OR 'large for gestational age'/exp OR (weight:ti,ab AND (birth:ti,ab OR births:ti,ab OR newborn*:ti,ab OR 'new born*':ti,ab OR neonat*:ti,ab OR fetal:ti,ab OR foetal:ti,ab OR fetus:ti,ab OR foetus:ti,ab)) OR macrosomia*:ti,ab OR macrosomatia*:ti,ab OR ((sga:ti,ab OR lga:ti,ab OR 'small for date':ti,ab OR 'large for date':ti,ab) AND (infant*:ti,ab OR neonat*:ti,ab OR newborn*:ti,ab OR 'new born*':ti,ab OR child:ti,ab OR children:ti,ab OR baby:ti,ab OR babies:ti,ab)) OR (('gestational age':ti,ab OR 'gestation age':ti,ab OR 'gestational time':ti,ab OR 'gestation time':ti,ab) AND (small*:ti,ab OR large*:ti,ab OR weight:ti,ab))</p>	263107
#64	#59 AND #63 AND [english]/lim	378
#63	#60 OR #61 OR #62	7313504
#62	<p>'cohort analysis'/exp OR 'longitudinal study'/exp OR 'prospective study'/exp OR 'follow up'/exp OR cohort*:ti,ab OR 'observational study'/exp OR prospective:ti,ab OR longitudinal:ti,ab OR observational:ti,ab OR followup:ti,ab OR 'follow up':ti,ab OR 'case control study'/exp OR 'control group'/exp OR ((nested NEAR/3 (stud* OR analys*)):ti,ab) OR (case*:ti,ab AND control*:ti,ab) OR (((participant* OR group) NEAR/3 follow*)):ti,ab) OR 'control group':ti,ab OR 'control groups':ti,ab</p>	4116602
#61	<p>'clinical trial'/exp OR randomized:ti,ab OR randomised:ti,ab OR placebo:ti,ab OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR 'clinical trial (topic)'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR 'triple blind procedure'/exp OR (((singl* OR doubl* OR trebl* OR tripl*) NEAR/10 (mask* OR blind* OR dumm*)):ti,ab) OR 'crossover procedure'/exp OR (((crossover OR 'cross over') NEAR/10 (study OR studies OR design* OR method* OR procedure OR comparison)):ti,ab)</p>	4406969
#60	<p>'meta analysis'/exp OR 'meta analysis (topic)'/exp OR 'systematic review'/exp OR 'systematic review (topic)'/exp OR 'biomedical technology assessment'/exp OR ((systematic* NEAR/3 (review* OR overview*)):ti,ab) OR ((methodologic* NEAR/3 (review* OR overview*)):ti,ab) OR ((quantitative NEAR/3 (review* OR overview* OR synthes*)):ti,ab) OR ((research NEAR/3 (integrati* OR overview*)):ti,ab) OR ((integrative NEAR/3 (review* OR overview*)):ti,ab) OR ((collaborative NEAR/3 (review* OR overview*)):ti,ab) OR ((pool* NEAR/3 analy*)):ti,ab) OR ((data NEAR/1 (synthes* OR extraction* OR abstraction*)):ti,ab) OR handsearch*:ti,ab OR 'hand search':ti,ab OR 'hand searches':ti,ab OR 'hand searching':ti,ab OR 'mantel haenszel':ti,ab OR peto:ti,ab OR 'der simonian':ti,ab OR dersimonian:ti,ab OR 'fixed effect':ti,ab OR 'fixed effects':ti,ab OR 'latin square':ti,ab OR 'latin squares':ti,ab OR 'meta analysis':ti,ab OR 'meta analyses':ti,ab OR 'met analysis':ti,ab OR 'met analyses':ti,ab OR metaanaly*:ti,ab OR metanaly*:ti,ab OR 'meta regression':ti,ab OR 'meta</p>	521052



	regressions':ti,ab OR metaregression*:ti,ab OR medline:ti,ab OR cochrane:ti,ab OR pubmed:ti,ab OR medlars:ti,ab OR embase:ti,ab OR cinahl:ti,ab OR cochrane:jt OR 'evidence report':jt OR ((comparative NEAR/3 (efficacy OR effectiveness)):ti,ab) OR 'outcomes research':ti,ab OR 'relative effectiveness':ti,ab OR (((indirect OR 'indirect treatment' OR 'mixed treatment') NEAR/3 comparison):ti,ab)	
#59	#57 NOT #58	1334
#58	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [note]/lim	5176910
#57	#55 NOT #56	1645
#56	('animal'/exp OR 'animal experiment'/exp) NOT ('human experiment'/exp OR 'human'/exp)	5471354
#55	#53 AND #54	2121
#54	'gout'/exp OR 'uric acid'/exp OR 'hyperuricemia'/exp OR 'uric acid blood level'/exp OR 'uric acid urine level'/exp OR 'uric acid stone'/exp OR gout:ti,ab OR gouty:ti,ab OR uric*:ti,ab OR hyperuricemi*:ti,ab OR hyperuricaemi*:ti,ab OR hyperuricacide*:ti,ab OR hyperuricacidaemi*:ti,ab	78073
#53	'sugar intake'/exp OR 'glucose intake'/exp OR 'fructose intake'/exp OR 'lactose intake'/exp OR 'sugar'/exp OR 'monosaccharide'/de OR 'fructose'/exp OR 'galactose'/exp OR 'disaccharide'/de OR 'sucrose'/exp OR 'maltose'/exp OR 'lactose'/exp OR 'trehalose'/exp OR ('glucose'/mj AND ('dietary intake'/de OR 'dietary reference intake'/exp OR 'diet'/exp OR 'food intake'/de OR 'food'/exp OR 'eating'/exp OR 'supplementation'/exp)) OR 'syrup'/exp OR 'honey'/exp OR 'molasses'/exp OR 'soft drink'/exp OR 'energy drink'/exp OR 'sports drink'/exp OR 'fruit and vegetable juice'/exp OR 'carbonated beverage'/exp OR 'sweetened beverage'/exp OR 'confectionary'/de OR 'sugar confectionary'/exp OR ((sugar*:ti,ab OR sucrose*:ti,ab OR fructose*:ti,ab OR galactose*:ti,ab OR glucose*:ti,ab OR lactose*:ti,ab OR trehalose*:ti,ab OR maltose*:ti,ab) AND (diet:ti,ab OR diets:ti,ab OR dieta*:ti,ab OR diete*:ti,ab)) OR ((glucose* NEAR/10 (diet OR diets OR dieta* OR diete*)):ti,ab) OR (((sugar* OR sucrose* OR fructose* OR galactose* OR glucose* OR lactose* OR trehalose* OR maltose*) NEAR/5 (intak* OR consum* OR feed* OR food OR foods OR supplement*)):ti,ab) OR disaccharide*:ti,ab OR 'di saccharide':ti,ab OR 'di saccharides':ti,ab OR monosaccharide*:ti,ab OR 'mono saccharide':ti,ab OR 'mono saccharides':ti,ab OR syrup*:ti,ab OR honey*:ti,ab OR candy:ti,ab OR candies:ti,ab OR sweet:ti,ab OR sweets:ti,ab OR sweetened:ti,ab OR pastry:ti,ab OR pastries:ti,ab OR confection*:ti,ab OR patisserie:ti,ab OR softdrink*:ti,ab OR softbeverage*:ti,ab OR (((soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR sugar * OR fruit*) NEAR/5 (drink* OR beverage*)):ti,ab) OR ((ssbs:ti,ab OR ssds:ti,ab OR ssb:ti,ab OR ssd:ti,ab) AND (beverage*:ti,ab OR soda*:ti,ab OR drink*:ti,ab)) OR juice*:ti,ab OR smoothie*:ti,ab	326759
#52	#47 AND #51 AND [english]/lim	799
#51	#48 OR #49 OR #50	7313504
#50	'cohort analysis'/exp OR 'longitudinal study'/exp OR 'prospective study'/exp OR 'follow up'/exp OR cohort*:ti,ab OR 'observational study'/exp OR prospective:ti,ab OR longitudinal:ti,ab OR observational:ti,ab OR followup:ti,ab OR 'follow up':ti,ab OR 'case control study'/exp OR 'control group'/exp OR ((nested NEAR/3 (stud* OR analys*)):ti,ab) OR (case*:ti,ab AND control*:ti,ab) OR (((participant* OR group) NEAR/3 follow*)):ti,ab) OR 'control group':ti,ab OR 'control groups':ti,ab	4116602
#49	'clinical trial'/exp OR randomized:ti,ab OR randomised:ti,ab OR placebo:ti,ab OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR 'clinical trial (topic)'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR 'triple blind procedure'/exp OR (((singl* OR doubl* OR trebl* OR tripl*) NEAR/10 (mask* OR blind* OR dumm*)):ti,ab) OR 'crossover procedure'/exp OR (((crossover OR 'cross over') NEAR/10 (study OR studies OR design* OR method* OR procedure OR comparison)):ti,ab)	4406969
#48	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR 'systematic review'/exp OR 'systematic review (topic)'/exp OR 'biomedical technology assessment'/exp	521052

	OR ((systematic* NEAR/3 (review* OR overview*)):ti,ab) OR ((methodologic* NEAR/3 (review* OR overview*)):ti,ab) OR ((quantitative NEAR/3 (review* OR overview* OR synthes*)):ti,ab) OR ((research NEAR/3 (integrati* OR overview*)):ti,ab) OR ((integrative NEAR/3 (review* OR overview*)):ti,ab) OR ((collaborative NEAR/3 (review* OR overview*)):ti,ab) OR ((pool* NEAR/3 analy*)):ti,ab) OR ((data NEAR/1 (synthes* OR extraction* OR abstraction*)):ti,ab) OR handsearch*:ti,ab OR 'hand search':ti,ab OR 'hand searches':ti,ab OR 'hand searching':ti,ab OR 'mantel haenszel':ti,ab OR peto:ti,ab OR 'der simonian':ti,ab OR dersimonian:ti,ab OR 'fixed effect':ti,ab OR 'fixed effects':ti,ab OR 'latin square':ti,ab OR 'latin squares':ti,ab OR 'meta analysis':ti,ab OR 'meta analyses':ti,ab OR 'met analysis':ti,ab OR 'met analyses':ti,ab OR metaanaly*:ti,ab OR metanaly*:ti,ab OR 'meta regression':ti,ab OR 'meta regressions':ti,ab OR metaregression*:ti,ab OR medline:ti,ab OR cochrane:ti,ab OR pubmed:ti,ab OR medlars:ti,ab OR embase:ti,ab OR cinahl:ti,ab OR cochrane:jt OR 'evidence report':jt OR ((comparative NEAR/3 (efficacy OR effectiveness)):ti,ab) OR 'outcomes research':ti,ab OR 'relative effectiveness':ti,ab OR (((indirect OR 'indirect treatment' OR 'mixed treatment') NEAR/3 comparison):ti,ab)	
#47	#45 NOT #46	2797
#46	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [note]/lim	5069089
#45	#43 NOT #44	3905
#44	('animal'/exp OR 'animal experiment'/exp) NOT ('human experiment'/exp OR 'human'/exp)	5471354
#43	#41 AND #42	7480
#42	'liver fat'/exp OR 'fatty liver'/de OR 'nonalcoholic fatty liver'/exp OR 'liver cirrhosis'/exp OR 'liver fibrosis'/exp OR 'liver failure'/exp OR 'fatty liver':ti,ab OR steatohepatit*:ti,ab OR steatos*:ti,ab OR nafld:ti,ab OR nash:ti,ab OR (((fat OR fatty) NEAR/5 (liver* OR hepat*)):ti,ab) OR cirrhos*:ti,ab OR (((fibros* OR failure* OR insufficienc*) NEAR/5 (liver* OR hepat*)):ti,ab)	350173
#41	'sugar intake'/exp OR 'glucose intake'/exp OR 'fructose intake'/exp OR 'lactose intake'/exp OR 'sugar'/exp OR 'monosaccharide'/de OR 'fructose'/exp OR 'galactose'/exp OR 'disaccharide'/de OR 'sucrose'/exp OR 'maltose'/exp OR 'lactose'/exp OR 'trehalose'/exp OR ('glucose'/mj AND ('dietary intake'/de OR 'dietary reference intake'/exp OR 'diet'/exp OR 'food intake'/de OR 'food'/exp OR 'eating'/exp OR 'supplementation'/exp)) OR 'syrup'/exp OR 'honey'/exp OR 'molasses'/exp OR 'soft drink'/exp OR 'energy drink'/exp OR 'sports drink'/exp OR 'fruit and vegetable juice'/exp OR 'carbonated beverage'/exp OR 'sweetened beverage'/exp OR 'confectionary'/de OR 'sugar confectionary'/exp OR ((sugar*:ti,ab OR sucrose*:ti,ab OR fructose*:ti,ab OR galactose*:ti,ab OR glucose*:ti,ab OR lactose*:ti,ab OR trehalose*:ti,ab OR maltose*:ti,ab) AND (diet:ti,ab OR diets:ti,ab OR dieta*:ti,ab OR diete*:ti,ab)) OR ((glucose* NEAR/10 (diet OR diets OR dieta* OR diete*)):ti,ab) OR (((sugar* OR sucrose* OR fructose* OR galactose* OR glucose* OR lactose* OR trehalose* OR maltose*) NEAR/5 (intak* OR consum* OR feed* OR food OR foods OR supplement*)):ti,ab) OR disaccharide*:ti,ab OR 'di saccharide':ti,ab OR 'di saccharides':ti,ab OR monosaccharide*:ti,ab OR 'mono saccharide':ti,ab OR 'mono saccharides':ti,ab OR syrup*:ti,ab OR honey*:ti,ab OR candy:ti,ab OR candies:ti,ab OR sweet:ti,ab OR sweets:ti,ab OR sweetened:ti,ab OR pastry:ti,ab OR pastries:ti,ab OR confection*:ti,ab OR patisserie:ti,ab OR softdrink*:ti,ab OR softbeverage*:ti,ab OR (((soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR sugar * OR fruit*) NEAR/5 (drink* OR beverage*)):ti,ab) OR ((ssbs:ti,ab OR ssds:ti,ab OR ssb:ti,ab OR ssd:ti,ab) AND (beverage*:ti,ab OR soda*:ti,ab OR drink*:ti,ab)) OR juice*:ti,ab OR smoothie*:ti,ab	326759
#40	(#38 OR #39) AND [english]/lim	5025
#39	#33 AND #36	3712
#38	#33 AND #37 AND [2013-2018]/py	2496
#37	#34 OR #35	4691098



#36	'cohort analysis'/exp OR 'longitudinal study'/exp OR 'prospective study'/exp OR 'follow up'/exp OR cohort*:ti,ab OR 'observational study'/exp OR prospective:ti,ab OR longitudinal:ti,ab OR observational:ti,ab OR followup:ti,ab OR 'follow up':ti,ab OR 'case control study'/exp OR 'control group'/exp OR ((nested NEAR/3 (stud* OR analys*)):ti,ab) OR (case*:ti,ab AND control*:ti,ab) OR (((participant* OR group) NEAR/3 follow*)):ti,ab) OR 'control group':ti,ab OR 'control groups':ti,ab	4116602
#35	'clinical trial'/exp OR randomized:ti,ab OR randomised:ti,ab OR placebo:ti,ab OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR 'clinical trial (topic)'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR 'triple blind procedure'/exp OR (((singl* OR doubl* OR trebl* OR tripl*) NEAR/10 (mask* OR blind* OR dumm*)):ti,ab) OR 'crossover procedure'/exp OR (((crossover OR 'cross over') NEAR/10 (study OR studies OR design* OR method* OR procedure OR comparison)):ti,ab)	4406969
#34	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR 'systematic review'/exp OR 'systematic review (topic)'/exp OR 'biomedical technology assessment'/exp OR ((systematic* NEAR/3 (review* OR overview*)):ti,ab) OR ((methodologic* NEAR/3 (review* OR overview*)):ti,ab) OR ((quantitative NEAR/3 (review* OR overview* OR synthes*)):ti,ab) OR ((research NEAR/3 (integrati* OR overview*)):ti,ab) OR ((integrative NEAR/3 (review* OR overview*)):ti,ab) OR ((collaborative NEAR/3 (review* OR overview*)):ti,ab) OR ((pool* NEAR/3 analy*)):ti,ab) OR (((data NEAR/1 (synthes* OR extraction* OR abstraction*)):ti,ab) OR handsearch*:ti,ab OR 'hand search':ti,ab OR 'hand searches':ti,ab OR 'hand searching':ti,ab OR 'mantel haenszel':ti,ab OR peto:ti,ab OR 'der simonian':ti,ab OR dersimonian:ti,ab OR 'fixed effect':ti,ab OR 'fixed effects':ti,ab OR 'latin square':ti,ab OR 'latin squares':ti,ab OR 'meta analysis':ti,ab OR 'meta analyses':ti,ab OR 'met analysis':ti,ab OR 'met analyses':ti,ab OR metaanaly*:ti,ab OR metanaly*:ti,ab OR 'meta regression':ti,ab OR 'meta regressions':ti,ab OR metaregression*:ti,ab OR medline:ti,ab OR cochrane:ti,ab OR pubmed:ti,ab OR medlars:ti,ab OR embase:ti,ab OR cinahl:ti,ab OR cochrane:jt OR 'evidence report':jt OR ((comparative NEAR/3 (efficacy OR effectiveness)):ti,ab) OR 'outcomes research':ti,ab OR 'relative effectiveness':ti,ab OR (((indirect OR 'indirect treatment' OR 'mixed treatment') NEAR/3 comparison):ti,ab)	521052
#33	#31 NOT #32	25496
#32	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [note]/lim	5176910
#31	#29 NOT #30	34096
#30	('animal'/exp OR 'animal experiment'/exp) NOT ('human experiment'/exp OR 'human'/exp)	5471354
#29	#27 AND #28	54262
#28	'cardiovascular disease'/exp OR 'cardiovascular system'/exp OR 'blood pressure'/exp OR 'cholesterol'/de OR 'cholesterol ester'/exp OR 'cholesterol metabolism'/exp OR 'disorders of cholesterol metabolism'/exp OR 'dyslipidemia'/exp OR 'hyperlipidemia'/exp OR 'lipid blood level'/de OR 'cholesterol blood level'/exp OR 'triacylglycerol blood level'/exp OR 'triacylglycerol'/exp OR 'lipoprotein'/de OR 'apolipoprotein b100'/exp OR apoplex*:ti,ab OR 'acute coronary syndrome':ti,ab OR angina*:ti,ab OR stenocardia:ti,ab OR (((heart OR coronary OR cardiac) NEAR/5 (disease* OR disorder* OR event* OR risk* OR complication* OR outcome* OR morbidit* OR mortalit* OR death* OR failure*)):ti,ab) OR chd:ti,ab OR chds:ti,ab OR (((('heart muscle' OR 'cardiac muscle' OR myocardial OR myocardium OR cardiac OR coronary OR heart OR transient OR cardiomyopath*) NEAR/5 (ischemi* OR ischaemi*)):ti,ab) OR (((myocardial OR heart) NEAR/5 (infarct* OR attack)):ti,ab) OR stemi:ti,ab OR nstemi:ti,ab OR stroke*:ti,ab OR 'blood pressure':ti,ab OR 'arterial pressure':ti,ab OR diastolic:ti,ab OR systolic:ti,ab OR bloodpressure:ti,ab OR prehypertens*:ti,ab OR hypertens*:ti,ab OR atherosclero*:ti,ab OR 'ldl c':ti,ab OR 'hdl c':ti,ab OR 'alpha-lipoprotein cholesterol':ti,ab OR cholesterol*:ti,ab OR hypercholest*:ti,ab OR hypertriglycer*:ti,ab OR dyslipidemi*:ti,ab OR dyslipidaemi*:ti,ab OR dyslipoproteinemi*:ti,ab OR hyperlipidemia*:ti,ab OR hyperlipidaemia*:ti,ab OR hyperlipemi*:ti,ab	5889246

	OR lipidemi*:ti,ab OR lipidaemi*:ti,ab OR lipemi*:ti,ab OR hyperlipoprotein*:ti,ab OR lipid:ti,ab OR lipids:ti,ab OR lipoprotein*:ti,ab OR triglycerid*:ti,ab OR triacylglycerol:ti,ab OR 'fasting tg':ti,ab OR apolipoprotein*:ti,ab OR apob100:ti,ab OR apob:ti,ab OR 'apo b':ti,ab OR 'apo b100':ti,ab	
#27	'sugar intake'/exp OR 'glucose intake'/exp OR 'fructose intake'/exp OR 'lactose intake'/exp OR 'sugar'/exp OR 'monosaccharide'/de OR 'fructose'/exp OR 'galactose'/exp OR 'disaccharide'/de OR 'sucrose'/exp OR 'maltose'/exp OR 'lactose'/exp OR 'trehalose'/exp OR ('glucose'/mj AND ('dietary intake'/de OR 'dietary reference intake'/exp OR 'diet'/exp OR 'food intake'/de OR 'food'/exp OR 'eating'/exp OR 'supplementation'/exp)) OR 'syrup'/exp OR 'honey'/exp OR 'molasses'/exp OR 'soft drink'/exp OR 'energy drink'/exp OR 'sports drink'/exp OR 'fruit and vegetable juice'/exp OR 'carbonated beverage'/exp OR 'sweetened beverage'/exp OR 'confectionary'/de OR 'sugar confectionary'/exp OR ((sugar*:ti,ab OR sucrose*:ti,ab OR fructose*:ti,ab OR galactose*:ti,ab OR glucose*:ti OR lactose*:ti,ab OR trehalose*:ti,ab OR maltose*:ti,ab) AND (diet:ti,ab OR diets:ti,ab OR dieta*:ti,ab OR diete*:ti,ab)) OR ((glucose* NEAR/10 (diet OR diets OR dieta* OR diete*)):ti,ab) OR (((sugar* OR sucrose* OR fructose* OR galactose* OR glucose* OR lactose* O R trehalose* OR maltose*) NEAR/5 (intak* OR consum* OR feed* OR food OR foods OR supplement*)):ti,ab) OR disaccharide*:ti,ab OR 'di saccharide':ti,ab OR 'di saccharides':ti,ab OR monosaccharide*:ti,ab OR 'mono saccharide':ti,ab OR 'mono saccharides':ti,ab OR syrup*:ti,ab OR honey*:ti,ab OR candy:ti,ab OR candies:ti,ab OR sweet:ti,ab OR sweets:ti,ab OR sweetened:ti,ab OR pastry:ti,ab OR pastries:ti,ab OR confection*:ti,ab OR patisserie:ti,ab OR softdrink*:ti,ab OR softbeverage*:ti,ab OR (((soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR fruit* OR sugar*) NEAR/5 (drink* OR beverage*)):ti,ab) OR ((ssbs:ti,ab OR ssds:ti,ab OR ssb:ti,ab OR ssd:ti,ab) AND (beverage*:ti,ab OR soda*:ti,ab OR drink*:ti,ab)) OR juice*:ti,ab OR smoothie*:ti,ab	326759
#26	(#24 OR #25) AND [english]/lim	5019
#25	#19 AND #22	3712
#24	#19 AND #23 AND [2013-2018]/py	2496
#23	#20 OR #21	4691098
#22	'cohort analysis'/exp OR 'longitudinal study'/exp OR 'prospective study'/exp OR 'follow up'/exp OR cohort*:ti,ab OR 'observational study'/exp OR prospective:ti,ab OR longitudinal:ti,ab OR observational:ti,ab OR followup:ti,ab OR 'follow up':ti,ab OR 'case control study'/exp OR 'control group'/exp OR ((nested NEAR/3 (stud* OR analys*)):ti,ab) OR (case*:ti,ab AND control*:ti,ab) OR (((participant* OR group) NEAR/3 follow*)):ti,ab) OR 'control group':ti,ab OR 'control groups':ti,ab	4116602
#21	'clinical trial'/exp OR randomized:ti,ab OR randomised:ti,ab OR placebo:ti,ab OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR 'clinical trial (topic)'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR 'triple blind procedure'/exp OR (((singl* OR doubl* OR trebl* OR tripl*) NEAR/10 (mask* OR blind* OR dumm*)):ti,ab) OR 'crossover procedure'/exp OR (((crossover OR 'cross over') NEAR/10 (study OR studies OR design* OR method* OR procedure OR comparison)):ti,ab)	4406969
#20	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR 'systematic review'/exp OR 'systematic review (topic)'/exp OR 'biomedical technology assessment'/exp OR ((systematic* NEAR/3 (review* OR overview*)):ti,ab) OR ((methodologic* NEAR/3 (review* OR overview*)):ti,ab) OR ((quantitative NEAR/3 (review* OR overview* OR synthes*)):ti,ab) OR ((research NEAR/3 (integrati* OR overview*)):ti,ab) OR ((integrative NEAR/3 (review* OR overview*)):ti,ab) OR ((collaborative NEAR/3 (review* OR overview*)):ti,ab) OR ((pool* NEAR/3 analy*)):ti,ab) OR ((data NEAR/1 (synthes* OR extraction* OR abstraction*)):ti,ab) OR handsearch*:ti,ab OR 'hand search':ti,ab OR 'hand searches':ti,ab OR 'hand searching':ti,ab OR 'mantel haenszel':ti,ab OR peto:ti,ab OR 'der simonian':ti,ab OR dersimonian:ti,ab OR 'fixed effect':ti,ab OR 'fixed effects':ti,ab OR 'latin square':ti,ab OR 'latin squares':ti,ab OR 'meta analysis':ti,ab OR 'meta	521052

	analyses':ti,ab OR 'met analysis':ti,ab OR 'met analyses':ti,ab OR metaanaly*:ti,ab OR metanaly*:ti,ab OR 'meta regression':ti,ab OR 'meta regressions':ti,ab OR metaregression*:ti,ab OR medline:ti,ab OR cochrane:ti,ab OR pubmed:ti,ab OR medlars:ti,ab OR embase:ti,ab OR cinahl:ti,ab OR cochrane:jt OR 'evidence report':jt OR ((comparative NEAR/3 (efficacy OR effectiveness)):ti,ab) OR 'outcomes research':ti,ab OR 'relative effectiveness':ti,ab OR (((indirect OR 'indirect treatment' OR 'mixed treatment') NEAR/3 comparison):ti,ab)	
#19	#17 NOT #18	25496
#18	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [note]/lim	5176910
#17	#15 NOT #16	34096
#16	('animal'/exp OR 'animal experiment'/exp) NOT ('human experiment'/exp OR 'human'/exp)	5471354
#15	#13 AND #14	54404
#14	'cardiovascular disease'/exp OR 'cardiovascular system'/exp OR 'blood pressure'/exp OR 'cholesterol'/de OR 'cholesterol ester'/exp OR 'cholesterol metabolism'/exp OR 'disorders of cholesterol metabolism'/exp OR 'dyslipidemia'/exp OR 'hyperlipidemia'/exp OR 'lipid blood level'/de OR 'cholesterol blood level'/exp OR 'triacylglycerol blood level'/exp OR 'triacylglycerol'/exp OR 'lipoprotein'/de OR 'apolipoprotein b100'/exp OR apoplex*:ti,ab OR 'acute coronary syndrome':ti,ab OR angina*:ti,ab OR stenocardia:ti,ab OR (((heart OR coronary OR cardiac) NEAR/5 (disease* OR disorder* OR event* OR risk* OR complication* OR outcome* OR morbidity* OR mortality* OR death* OR failure*)):ti,ab) OR chd:ti,ab OR chds:ti,ab OR (((('heart muscle' OR 'cardiac muscle' OR myocardial OR myocardium OR cardiac OR coronary OR heart OR transient OR cardiomyopathy*) NEAR/5 (ischemi* OR ischaemi*)):ti,ab) OR (((myocardial OR heart) NEAR/5 (infarct* OR attack)):ti,ab) OR stemi:ti,ab OR nstemi:ti,ab OR stroke*:ti,ab OR 'blood pressure':ti,ab OR 'arterial pressure':ti,ab OR diastolic:ti,ab OR systolic:ti,ab OR bloodpressure:ti,ab OR prehypertens*:ti,ab OR hypertens*:ti,ab OR atherosclero*:ti,ab OR 'ldl c':ti,ab OR 'hdl c':ti,ab OR 'alpha-lipoprotein cholesterol':ti,ab OR cholesterol*:ti,ab OR hypercholesterol*:ti,ab OR hypertriglycer*:ti,ab OR dyslipidemi*:ti,ab OR dyslipidaemi*:ti,ab OR dyslipoproteinemi*:ti,ab OR hyperlipidemia*:ti,ab OR hyperlipidaemia*:ti,ab OR hyperlipemi*:ti,ab OR lipidemi*:ti,ab OR lipidaemi*:ti,ab OR lipemi*:ti,ab OR hyperlipoprotein*:ti,ab OR lipid:ti,ab OR lipids:ti,ab OR lipoprotein*:ti,ab OR triglycerid*:ti,ab OR triacylglycerol:ti,ab OR 'fasting tg':ti,ab OR apolipoprotein*:ti,ab OR apob100:ti,ab OR apob:ti,ab OR 'apo b':ti,ab OR 'apo b100':ti,ab	5889246
#13	'sugar intake'/exp OR 'glucose intake'/exp OR 'fructose intake'/exp OR 'lactose intake'/exp OR 'sugar'/exp OR 'monosaccharide'/de OR 'fructose'/exp OR 'galactose'/exp OR 'disaccharide'/de OR 'sucrose'/exp OR 'maltose'/exp OR 'lactose'/exp OR 'trehalose'/exp OR ('glucose'/mj AND ('dietary intake'/de OR 'dietary reference intake'/exp OR 'diet'/exp OR 'food intake'/de OR 'food'/exp OR 'eating'/exp OR 'supplementation'/exp)) OR 'syrup'/exp OR 'honey'/exp OR 'molasses'/exp OR 'soft drink'/exp OR 'energy drink'/exp OR 'sports drink'/exp OR 'fruit and vegetable juice'/exp OR 'carbonated beverage'/exp OR 'sweetened beverage'/exp OR 'confectionary'/de OR 'sugar confectionary'/exp OR ((sugar*:ti,ab OR sucrose*:ti,ab OR fructose*:ti,ab OR galactose*:ti,ab OR glucose*:ti,ab OR lactose*:ti,ab OR trehalose*:ti,ab OR maltose*:ti,ab) AND (diet:ti,ab OR diets:ti,ab OR dieta*:ti,ab OR diete*:ti,ab)) OR ((glucose* NEAR/10 (diet OR diets OR dieta* OR diete*)):ti,ab) OR (((sugar* OR sucrose* OR fructose* OR galactose* OR glucose* OR lactose* OR trehalose* OR maltose*) NEAR/5 (intak* OR consum* OR feed* OR food OR foods OR supplement*)):ti,ab) OR disaccharide*:ti,ab OR 'di saccharide':ti,ab OR 'di saccharides':ti,ab OR monosaccharide*:ti,ab OR 'mono saccharide':ti,ab OR 'mono saccharides':ti,ab OR syrup*:ti,ab OR honey*:ti,ab OR candy:ti,ab OR candies:ti,ab OR sweet:ti,ab OR sweets:ti,ab OR sweetened:ti,ab OR pastry:ti,ab OR pastries:ti,ab OR confection*:ti,ab OR patisserie:ti,ab	326657

	OR softdrink*:ti,ab OR softbeverage*:ti,ab OR (((soft OR fizzy OR carbonated OR soda OR energy OR sports OR sports OR fruit * OR sugar*) NEAR/5 (drink* OR beverage*)):ti,ab) OR ((ssbs:ti,ab OR ssds:ti,ab OR ssb:ti,ab OR ssd:ti,ab) AND (beverage*:ti,ab OR soda*:ti,ab OR drink*:ti,ab)) OR juice*:ti,ab OR smoothie*:ti,ab	
#12	#7 AND #11 AND [2011-2018]/py AND [english]/lim	5355
#11	#8 OR #9 OR #10	7313504
#10	'cohort analysis'/exp OR 'longitudinal study'/exp OR 'prospective study'/exp OR 'follow up'/exp OR cohort*:ti,ab OR 'observational study'/exp OR prospective:ti,ab OR longitudinal:ti,ab OR observational:ti,ab OR followup:ti,ab OR 'follow up':ti,ab OR 'case control study'/exp OR 'control group'/exp OR ((nested NEAR/3 (stud* OR analys*)):ti,ab) OR (case*:ti,ab AND control*:ti,ab) OR (((participant* OR group) NEAR/3 follow*)):ti,ab) OR 'control group':ti,ab OR 'control groups':ti,ab	4116602
#9	'clinical trial'/exp OR randomized:ti,ab OR randomised:ti,ab OR placebo:ti,ab OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR 'clinical trial (topic)'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR 'triple blind procedure'/exp OR (((singl* OR doubl* OR trebl* OR tripl*) NEAR/10 (mask* OR blind* OR dumm*)):ti,ab) OR 'crossover procedure'/exp OR (((crossover OR cross over) NEAR/10 (study OR studies OR design* OR method* OR procedure OR comparison)):ti,ab)	4406969
#8	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR 'systematic review'/exp OR 'systematic review (topic)'/exp OR 'biomedical technology assessment'/exp OR ((systematic* NEAR/3 (review* OR overview*)):ti,ab) OR ((methodologic* NEAR/3 (review* OR overview*)):ti,ab) OR ((quantitative NEAR/3 (review* OR overview* OR synthes*)):ti,ab) OR ((research NEAR/3 (integrati* OR overview*)):ti,ab) OR ((integrative NEAR/3 (review* OR overview*)):ti,ab) OR ((collaborative NEAR/3 (review* OR overview*)):ti,ab) OR ((pool* NEAR/3 analy*)):ti,ab) OR ((data NEAR/1 (synthes* OR extraction* OR abstraction*)):ti,ab) OR handsearch*:ti,ab OR 'hand search':ti,ab OR 'hand searches':ti,ab OR 'hand searching':ti,ab OR 'mantel haenszel':ti,ab OR peto:ti,ab OR 'der simonian':ti,ab OR dersimonian:ti,ab OR 'fixed effect':ti,ab OR 'fixed effects':ti,ab OR 'latin square':ti,ab OR 'latin squares':ti,ab OR 'meta analysis':ti,ab OR 'meta analyses':ti,ab OR 'met analysis':ti,ab OR 'met analyses':ti,ab OR metaanaly*:ti,ab OR metanaly*:ti,ab OR 'meta regression':ti,ab OR 'meta regressions':ti,ab OR metaregression*:ti,ab OR medline:ti,ab OR cochrane:ti,ab OR pubmed:ti,ab OR medlars:ti,ab OR embase:ti,ab OR cinahl:ti,ab OR cochrane:jt OR 'evidence report':jt OR ((comparative NEAR/3 (efficacy OR effectiveness)):ti,ab) OR 'outcomes research':ti,ab OR 'relative effectiveness':ti,ab OR (((indirect OR indirect treatment) OR 'mixed treatment') NEAR/3 comparison):ti,ab)	521052
#7	#5 NOT #6	20741
#6	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [note]/lim	5176910
#5	#3 NOT #4	30090
#4	('animal'/exp OR 'animal experiment'/exp) NOT ('human experiment'/exp OR 'human'/exp)	5471354
#3	#1 AND #2	48879
#2	'adipose tissue'/de OR 'abdominal fat'/exp OR 'abdominal subcutaneous fat'/exp OR 'intraabdominal fat'/exp OR 'body fat'/exp OR 'body fat distribution'/exp OR 'fat pad'/exp OR 'weight, mass and size'/de OR 'body weight'/de OR 'lean body weight'/exp OR 'weight change'/exp OR 'weight fluctuation'/exp OR 'weight gain'/de OR 'weight reduction'/exp OR 'weight variation'/exp OR 'obesity'/exp OR 'body mass'/exp OR 'body size'/exp OR 'sagittal abdominal diameter'/exp OR 'waist circumference'/exp OR 'body composition'/de OR 'body distribution'/exp OR 'body constitution'/exp OR adipos*:ti,ab OR (((fat OR fats) NEAR/5 (pad OR pads OR body)):ti,ab) OR ((fatty NEAR/5 tissue):ti,ab) OR (((abdominal OR intraabdominal OR distribut* OR ectopic) NEAR/5 fat):ti,ab) OR ((weight* NEAR/5 (gain OR loss* OR chang* OR reduc* OR maint* OR watch* OR variation* OR c ontrol* OR body OR lean OR increm*)):ti,ab) OR 'waist circumference':ti,ab	1495070

	OR 'abdominal diameter':ti,ab OR obese*:ti,ab OR obesi*:ti,ab OR obeso*:ti,ab OR overweight*:ti,ab OR ((body NEAR/5 (size OR mass OR composition* OR constitution*)):ti,ab) OR bmi:ti,ab	
#1	'sugar intake'/exp OR 'glucose intake'/exp OR 'fructose intake'/exp OR 'lactose intake'/exp OR 'sugar'/exp OR 'monosaccharide'/de OR 'fructose'/exp OR 'galactose'/exp OR 'disaccharide'/de OR 'sucrose'/exp OR 'maltose'/exp OR 'lactose'/exp OR 'trehalose'/exp OR ('glucose'/mj AND ('dietary intake'/de OR 'dietary reference intake'/exp OR 'diet'/exp OR 'food intake'/de OR 'food'/exp OR 'eating'/exp OR 'supplementation'/exp)) OR 'syrup'/exp OR 'honey'/exp OR 'molasses'/exp OR 'soft drink'/exp OR 'energy drink'/exp OR 'sports drink'/exp OR 'fruit and vegetable juice'/exp OR 'carbonated beverage'/exp OR 'sweetened beverage'/exp OR 'confectionary'/de OR 'sugar confectionary'/exp OR ((sugar*:ti,ab OR sucrose*:ti,ab OR fructose*:ti,ab OR galactose*:ti,ab OR glucose*:ti OR lactose*:ti,ab OR trehalose*:ti,ab OR maltose*:ti,ab) AND (diet:ti,ab OR diets:ti,ab OR dieta*:ti,ab OR diete*:ti,ab)) OR ((glucose* NEAR/10 (diet OR diets OR dieta* OR diete*)):ti,ab) OR (((sugar* OR sucrose* OR fructose* OR galactose* OR glucose* OR lactose* OR trehalose* OR maltose*) NEAR/5 (intak* OR consum* OR feed* OR food OR foods OR supplement*)):ti,ab) OR disaccharide*:ti,ab OR 'di saccharide':ti,ab OR 'di saccharides':ti,ab OR monosaccharide*:ti,ab OR 'mono saccharide':ti,ab OR 'mono saccharides':ti,ab OR syrup*:ti,ab OR honey*:ti,ab OR candy:ti,ab OR candies:ti,ab OR sweet:ti,ab OR sweets:ti,ab OR sweetened:ti,ab OR pastry:ti,ab OR pastries:ti,ab OR confection*:ti,ab OR patisserie:ti,ab OR softdrink*:ti,ab OR softbeverage*:ti,ab OR (((soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR fruit* OR sugar*) NEAR/5 (drink* OR beverage*)):ti,ab) OR ((ssbs:ti,ab OR ssds:ti,ab OR ssb:ti,ab OR ssd:ti,ab) AND (beverage*:ti,ab OR soda*:ti,ab OR drink*:ti,ab)) OR juice*:ti,ab OR smoothie*:ti,ab	326759

Search strings to identify systematic reviews and clinical trials adapted from CADTH's Database Search Filters: CADTH database search filters [Internet]. Ottawa: CADTH; 2016. Available from: /resources/finding-evidence

## PubMed

Date of the search: 23 July 2018

No	Query	Items found
#63	Search #16 OR #26 OR #33 OR #40 OR #47 OR #55 OR #62	12872
#62	Search #61 AND #21	161
#61	Search #60 AND "ENGLISH"[LANGUAGE]	270
#60	Search #59 NOT #14	298
#59	Search #58 NOT #12	305
#58	Search #57 NOT #10	314
#57	Search #56 AND #48	368
#56	Search "Diabetes, Gestational"[Mesh] OR "Pregnancy in Diabetics"[Mesh] OR (diabet*[tiab] AND (pregnan*[tiab] OR gestational[tiab])) OR GDM[tiab]	32691
#55	Search #54 AND "ENGLISH"[LANGUAGE]	4031
#54	Search #53 NOT #14	4291
#53	Search #52 NOT #12	4310
#52	Search #51 NOT #10	4525
#51	Search #50 AND #21	6581
#50	Search #48 AND #49	26899
#49	Search "Diabetes Mellitus, Type 2"[Mesh] OR "Hyperinsulinism"[Mesh:noexp] OR "Insulin Resistance"[Mesh] OR "Metabolic Syndrome"[Mesh] OR "Blood Glucose"[Mesh] OR "Insulin/blood"[Mesh] OR "Hyperglycemia"[Mesh] OR "Glucose Intolerance"[Mesh] OR "Carbohydrate Metabolism"[Mesh] OR "Glycated Hemoglobin A"[Mesh] OR "Fructosamine"[Mesh] OR "Metabolic	649140



	Diseases"[Mesh:noexp] OR "glucose homeostasis"[tiab] OR "glucose homeostases"[tiab] OR (Diabet*[tiab] AND ("type 2"[tiab] OR "type II"[tiab] OR type2[tiab] OR typeii[tiab])) OR ((Late[tiab] OR adult*[tiab] OR matur*[tiab] OR slow*[tiab] OR stabl*[tiab]) AND onset[tiab] AND diabet*[tiab]) OR ((Non-insulin-depend*[tiab] OR noninsulin depend*[tiab]) AND diabet*[tiab]) OR Hyperinsulinism[tiab] OR Hyperinsulinemia[tiab] OR ((resistan*[tiab] OR sensitivity[tiab] OR tolerance[tiab] OR intolerance[tiab] OR control[tiab] OR fasting[tiab]) AND insulin[tiab]) OR "Metabolic syndrome"[tiab] OR metabolic disorder*[tiab] OR "blood glucose"[tiab] OR "glucose blood"[tiab] OR Hyperglycemia*[tiab] OR ((tolerance[tiab] OR intolerance[tiab] OR fasting[tiab]) AND glucose[tiab]) OR ((Glycated[tiab] OR Glycosylated[tiab]) AND (Hemoglobin[tiab] OR haemoglobin[tiab])) OR "Hemoglobin A"[tiab] OR "Haemoglobin A"[tiab] OR "Hemoglobin A1c"[tiab] OR "Haemoglobin A1C"[tiab] OR "Hemoglobin Aic"[tiab] OR "Haemoglobin AiC"[tiab] OR HbA1c[tiab] OR HbA1[tiab] OR "HbA 1c"[tiab] OR "Hb A1c"[tiab] OR "Hb a 1c"[tiab] OR (Fructosamine[tiab] AND (blood[tiab] OR serum[tiab] OR plasma[tiab]))	
#48	Search "Sugars"[Mesh:noexp] OR "Monosaccharides"[Mesh:noexp] OR "Fructose"[Mesh] OR "Galactose"[Mesh] OR "Disaccharides"[Mesh:noexp] OR "Sucrose"[Mesh:noexp] OR "Lactose"[Mesh] OR "Trehalose"[Mesh] OR "Maltose"[Mesh] OR "Dietary Sugars"[Mesh] OR "Dietary Sucrose"[Mesh] OR "Honey"[Mesh] OR "Molasses"[Mesh] OR "Carbonated Beverages"[Mesh] OR "Energy Drinks"[Mesh] OR "Fruit and Vegetable Juices"[Mesh] OR "Beverages/adverse effects"[Mesh] OR "Candy"[Mesh] OR "Chocolate"[Mesh] OR ((Sugar*[tiab] OR Sucrose*[tiab] OR Fructose*[tiab] OR Galactose*[tiab] OR Lactose*[tiab] OR Trehalose*[tiab] OR Maltose*[tiab]) AND (diet[tiab] OR diets[tiab] OR dieta*[tiab] OR diete*[tiab] OR intak*[tiab] OR consum*[tiab] OR feed*[tiab] OR food[tiab] OR foods[tiab] OR supplement*[tiab])) OR Disaccharide*[tiab] OR Di-saccharide*[tiab] OR Monosaccharide*[tiab] OR Mono-saccharide*[tiab] OR Syrup*[tiab] OR honey[tiab] OR candy[tiab] OR candies[tiab] OR sweet[tiab] OR sweets[tiab] OR sweetened[tiab] OR Pastry[tiab] OR pastries[tiab] OR confection*[tiab] OR patisserie[tiab] OR soft drink*[tiab] OR softdrink*[tiab] OR soft beverage*[tiab] OR softbeverage*[tiab] OR fizzy drink*[tiab] OR carbonated drink*[tiab] OR carbonated beverage*[tiab] OR soda drink*[tiab] OR soda beverage*[tiab] OR energy drink*[tiab] OR energy beverage*[tiab] OR sports drink*[tiab] OR sport drink*[tiab] OR sport beverage*[tiab] OR energy beverage*[tiab] OR sugar drink*[tiab] OR sugar beverage*[tiab] OR ((SSBs[tiab] OR SSDs[tiab] OR SSB[tiab] OR SSD[tiab]) AND (beverage*[tiab] OR soda*[tiab] OR drink*[tiab])) OR fruit drink*[tiab] OR fruit beverage*[tiab] OR Juice*[tiab] OR Smoothie*[tiab]	203959
#47	Search #46 AND "ENGLISH"[LANGUAGE]	650
#46	Search #45 NOT #14	716
#45	Search #44 NOT #12	717
#44	Search #43 NOT #10	727
#43	Search #42 AND #21	1009
#42	Search #41 AND #1	1984
#41	Search ("Birth Weight"[Mesh] OR "Fetal Macrosomia"[Mesh] OR "Fetal Weight"[Mesh] OR "Gestational Age"[Mesh] OR "Infant, Low Birth Weight"[Mesh] OR "Infant, Small for Gestational Age"[Mesh] OR "Infant, Very Low Birth Weight"[Mesh] OR "Infant, Extremely Low Birth Weight"[Mesh] OR (weight[tiab] AND (birth[tiab] OR births[tiab] OR newborn*[tiab] OR new born*[tiab] OR neonat*[tiab] OR fetal[tiab] OR foetal[tiab] OR fetus[tiab] OR foetus[tiab])) OR macrosomia*[tiab] OR macrosomatia*[tiab] OR ((SGA[tiab] OR LGA[tiab] OR "small for date"[tiab] OR "large for date"[tiab]) AND (infant*[tiab] OR neonat*[tiab] OR newborn*[tiab] OR new born*[tiab] OR child[tiab] OR children[tiab] OR baby[tiab] OR babies[tiab])) OR (("Gestational age"[tiab] OR "gestation age"[tiab] OR "gestational time"[tiab] OR "gestation time"[tiab]) AND (small*[tiab] OR large*[tiab] OR weight[tiab]))	183374
#40	Search #39 AND "ENGLISH"[Language]	305
#39	Search #38 NOT #14	340
#38	Search #37 NOT #12	341
#37	Search #36 NOT #10	355
#36	Search #35 AND #21	430
#35	Search #34 AND #1	1236

#34	Search "Hyperuricemia"[Mesh] OR "Gout"[Mesh] OR "Uric Acid"[Mesh] OR gout[tiab] OR gouty[tiab] OR uric[tiab] OR hyperuricacidaemi*[tiab] OR hyperuricacide*[tiab] OR hyperuricaemi*[tiab] OR Hyperuricemi*[tiab]	46690
#33	Search (#32) AND ENGLISH[Language]	583
#32	Search #31 NOT #14	653
#31	Search #30 NOT #12	656
#30	Search #29 NOT #10	729
#29	Search #28 AND #21	1113
#28	Search #1 AND #27	3346
#27	Search "Fatty Liver"[Mesh:noexp] OR "Non-alcoholic Fatty Liver Disease"[Mesh] OR "Liver Cirrhosis"[Mesh:noexp] OR "Liver Failure"[Mesh] OR fatty liver[tiab] OR steatohepatit*[tiab] OR steatos*[tiab] OR NAFLD[tiab] OR NASH[tiab] OR ("Fat liver"[tiab] AND accumul*[tiab]) OR cirrhos*[tiab] OR ((Fibros*[tiab] OR failure*[tiab] OR insufficienc*[tiab]) AND (liver[tiab] OR Hepatic[tiab]))	211500
#26	Search ((#25) AND ("2011"[Date - Publication] : "3000"[Date - Publication])) AND "english"[Language]	5493
#25	Search #24 NOT #14	11363
#24	Search #23 NOT #12	11417
#23	Search #22 NOT #10	11789
#22	Search #20 AND #21	16195
#21	Search "Cohort Studies"[Mesh] OR cohort*[tiab] OR "follow up"[tiab] OR followup[tiab] OR prospective[tiab] OR longitudinal[tiab] OR "epidemiologic methods"[Mesh:noexp] OR "Observational Study"[Publication Type] OR observational[tiab] OR "Case-Control Studies"[Mesh] OR "Control Groups"[Mesh] OR nested stud*[tiab] OR nested analys*[tiab] OR (case*[tiab] AND control*[tiab]) OR control group*[tiab] OR ("clinical trial"[pt] OR randomized[tiab] OR randomised[tiab] OR placebo[tiab] OR randomly[tiab] OR trial[tiab] OR groups[tiab] OR "Clinical Trials as Topic"[Mesh] OR "Double-Blind Method"[Mesh] OR "Single-Blind Method"[Mesh] OR ((singl*[tiab] OR doubl*[tiab] OR trebl*[tiab] OR tripl*[tiab]) AND (mask*[tiab] OR blind*[tiab] OR dumm*[tiab])) OR "Cross-Over Studies"[Mesh] OR ((crossover[tiab] OR "cross over"[tiab]) AND (study[tiab] OR studies[tiab] OR design*[tiab] OR method*[tiab] OR procedure[tiab] OR comparison[tiab])) OR systematic[sb] OR meta-analysis[pt] OR meta-analysis as topic[mh] OR meta-analysis[mh] OR meta analy*[tw] OR metanaly*[tw] OR metaanaly*[tw] OR met analy*[tw] OR integrative research[tiab] OR integrative review*[tiab] OR integrative overview*[tiab] OR research integration*[tiab] OR research overview*[tiab] OR collaborative review*[tiab] OR collaborative overview*[tiab] OR systematic review*[tiab] OR comparative efficacy[tiab] OR comparative effectiveness[tiab] OR outcomes research[tiab] OR indirect comparison*[tiab] OR Embase*[tiab] OR Cinahl*[tiab] OR systematic overview*[tiab] OR methodological overview*[tiab] OR methodologic overview*[tiab] OR methodological review*[tiab] OR methodologic review*[tiab] OR quantitative review*[tiab] OR quantitative overview*[tiab] OR quantitative syntheses*[tiab] OR pooled analy*[tiab] OR Cochrane[tiab] OR Medline[tiab] OR Pubmed[tiab] OR Medlars[tiab] OR handsearch*[tiab] OR hand search*[tiab] OR meta-regression*[tiab] OR metaregression*[tiab] OR data syntheses*[tiab] OR data extraction[tiab] OR data abstraction*[tiab] OR mantel haenszel[tiab] OR peto[tiab] OR der-simonian[tiab] OR dersimonian[tiab] OR fixed effect*[tiab] OR "Cochrane Database Syst Rev"[Journal]	5645058
#20	Search #18 AND #19	16195
#18	Search #17 AND #1	37680
#17	Search ("Adipose Tissue"[Mesh:noexp] OR "Abdominal Fat"[Mesh] OR "Body Weights and Measures"[Mesh:noexp] OR "Body Fat Distribution"[Mesh] OR "Adiposity"[Mesh] OR "Body Composition"[Mesh] OR "Body Constitution"[Mesh:noexp] OR "Body Mass Index"[Mesh] OR "Body Size"[Mesh:noexp] OR "Body Weight"[Mesh:noexp] OR "Body Weight Changes"[Mesh] OR Overweight[Mesh] OR "Obesity"[Mesh:noexp] OR "Obesity, Abdominal"[Mesh] OR "Obesity, Morbid"[Mesh] OR "Pediatric Obesity"[Mesh] OR "Sagittal Abdominal Diameter"[Mesh] OR "Waist Circumference"[Mesh] OR adipos*[tiab] OR "fat pad"[tiab] OR "fat pads"[tiab] OR body fat*[tiab] OR "fatty tissue*[tiab] OR "body size"[tiab] OR "abdominal fat"[tiab] OR "intra-abdominal fat"[tiab] OR "intraabdominal fat"[tiab] OR fat distribut*[tiab] OR "ectopic	1105809

	fat[tiab] OR waist circumference*[tiab] OR "abdominal diameter"[tiab] OR Obese*[tiab] OR Obesi*[tiab] OR Obeso*[tiab] OR Overweight*[tiab] OR (Weight[tiab] AND (gain*[tiab] OR loss*[tiab] OR chang*[tiab] OR reduc*[tiab] OR maint*[tiab] OR watch*[tiab] OR variation[tiab] OR control*[tiab] OR body[tiab] OR lean[tiab] OR increment*[tiab])) OR "Body mass"[tiab] OR bmi[tiab] OR body composition*[tiab] OR body constitution*[tiab])	
#16	Search #15 AND "ENGLISH"[Language]	6094
#15	Search #13 NOT #14	6430
#14	Search ("comment"[Publication Type] OR "editorial"[Publication Type] OR "congresses"[Publication Type])	1125929
#13	Search #11 NOT #12	6461
#12	Search ((rat[ti] OR rats[ti] OR mouse[ti] OR mice[ti] OR murine[ti] OR rodent[ti] OR rodents[ti] OR hamster[ti] OR hamsters[ti] OR pig[ti] OR pigs[ti] OR porcine[ti] OR rabbit[ti] OR rabbits[ti] OR animal[ti] OR animals[ti] OR dogs[ti] OR dog[ti] OR cats[ti] OR cow[ti] OR bovine[ti] OR sheep[ti] OR ovine[ti] OR monkey[ti] OR monkeys[ti] OR horse[ti] OR horses[ti]) NOT medline[sb])	104393
#11	Search #9 NOT #10	6726
#10	Search "Animals"[Mesh] NOT "Humans"[Mesh]	4476713
#9	Search #6 OR #8	8881
#8	Search #1 AND #2 AND #7	5927
#7	Search ("Cohort Studies"[Mesh] OR cohort*[tiab] OR "follow up"[tiab] OR followup[tiab] OR prospective[tiab] OR longitudinal[tiab] OR "epidemiologic methods"[Mesh:noexp] OR "Observational Study"[Publication Type] OR observational[tiab] OR "Case-Control Studies"[Mesh] OR "Control Groups"[Mesh] OR nested stud*[tiab] OR nested analys*[tiab] OR (case*[tiab] AND control*[tiab]) OR control group*[tiab])	3362631
#6	Search (#4) AND #5	4112
#5	Search "2013"[Date - Publication] : "3000"[Date - Publication]	6152999
#4	Search #1 AND #2 AND #3	13478
#3	Search ("clinical trial"[pt] OR randomized[tiab] OR randomised[tiab] OR placebo[tiab] OR randomly[tiab] OR trial[tiab] OR groups[tiab] OR "Clinical Trials as Topic"[Mesh] OR "Double-Blind Method"[Mesh] OR "Single-Blind Method"[Mesh] OR ((singl*[tiab] OR doubl*[tiab] OR trebl*[tiab] OR tripl*[tiab]) AND (mask*[tiab] OR blind*[tiab] OR dumm*[tiab])) OR "Cross-Over Studies"[Mesh] OR ((crossover[tiab] OR "cross over"[tiab]) AND (study[tiab] OR studies[tiab] OR design*[tiab] OR method*[tiab] OR procedure[tiab] OR comparison[tiab])) OR systematic[sb] OR meta-analysis[pt] OR meta-analysis as topic[mh] OR meta-analysis[mh] OR meta analy*[tw] OR metanaly*[tw] OR metaanaly*[tw] OR met analy*[tw] OR integrative research[tiab] OR integrative review*[tiab] OR integrative overview*[tiab] OR research integration*[tiab] OR research overview*[tiab] OR collaborative review*[tiab] OR collaborative overview*[tiab] OR systematic review*[tiab] OR comparative efficacy[tiab] OR comparative effectiveness[tiab] OR outcomes research[tiab] OR indirect comparison*[tiab] OR Embase*[tiab] OR Cinahl*[tiab] OR systematic overview*[tiab] OR methodological overview*[tiab] OR methodologic overview*[tiab] OR methodological review*[tiab] OR methodologic review*[tiab] OR quantitative review*[tiab] OR quantitative overview*[tiab] OR quantitative syntheses*[tiab] OR pooled analy*[tiab] OR Cochrane[tiab] OR Medline[tiab] OR Pubmed[tiab] OR Medlars[tiab] OR handsearch*[tiab] OR hand search*[tiab] OR meta-regression*[tiab] OR metaregression*[tiab] OR data syntheses*[tiab] OR data extraction[tiab] OR data abstraction*[tiab] OR mantel haenszel[tiab] OR peto[tiab] OR der-simonian[tiab] OR dersimonian[tiab] OR fixed effect*[tiab])	3381255
#2	Search "Cardiovascular Diseases"[Mesh] OR "Cardiovascular System"[Mesh] OR "Blood Pressure"[Mesh] OR "Cholesterol"[Mesh:noexp] OR "Cholesterol, HDL"[Mesh] OR "Cholesterol, LDL"[Mesh] OR "Cholesterol, VLDL"[Mesh] OR "Dyslipidemias"[Mesh:noexp] OR "Hyperlipidemias"[Mesh:noexp] OR "Hypercholesterolemia"[Mesh] OR "Hyperlipoproteinemias"[Mesh] OR "Lipids"[Mesh] OR "Triglycerides"[Mesh] OR "Lipoproteins"[Mesh:noexp] OR "Apolipoproteins"[Mesh] OR Apoplex*[tiab] OR Acute coronary syndrome[tiab] OR Angina*[tiab] OR Stenocardia*[tiab] OR Heart disease*[tiab] OR Heart disorder*[tiab] OR Heart event*[tiab] OR Heart risk*[tiab] OR Heart complication*[tiab] OR Heart outcome*[tiab] OR Heart morbidity*[tiab] OR Heart mortalit*[tiab] OR Heart death*[tiab] OR Heart failure*[tiab] OR Coronary	4363681

	disease*[tiab] OR Coronary disorder*[tiab] OR Coronary event*[tiab] OR Coronary risk*[tiab] OR Coronary complication*[tiab] OR Coronary outcome*[tiab] OR Coronary morbidity*[tiab] OR Coronary mortality*[tiab] OR Coronary death*[tiab] OR Cardiac disease*[tiab] OR Cardiac disorder*[tiab] OR Cardiac event*[tiab] OR Cardiac risk*[tiab] OR Cardiac complication*[tiab] OR Cardiac outcome*[tiab] OR Cardiac morbidity*[tiab] OR Cardiac mortality*[tiab] OR Cardiac death*[tiab] OR Cardiac failure*[tiab] OR CHD[tiab] OR CHDs[tiab] OR stroke*[tiab] OR (transient[tiab] AND ischemi*[tiab] AND (accident*[tiab] OR incident*[tiab] OR attack*[tiab])) OR (transient[tiab] AND ischaemi*[tiab] AND (accident*[tiab] OR incident*[tiab] OR attack*[tiab])) OR ("heart muscle"[tiab] OR "cardiac muscle"[tiab] OR myocardial[tiab] OR myocardium[tiab] OR cardiac[tiab] OR coronary[tiab] OR heart[tiab] OR cardiomyopathy*[tiab] AND (ischemi*[tiab] OR ischaemi*[tiab])) OR Myocardial infarct*[tiab] OR Heart attack*[tiab] OR STEMI[tiab] OR NSTEMI[tiab] OR Blood pressure[tiab] OR Arterial pressure[tiab] OR Diastolic[tiab] OR Systolic[tiab] OR Bloodpressure[tiab] OR Prehypertens*[tiab] OR Hypertens*[tiab] OR Atherosclero*[tiab] OR LDL-C[tiab] OR HDL-C[tiab] OR Cholesterol[tiab] OR Hypercholesterol*[tiab] OR hypertriglycer*[tiab] OR Dyslipidemi*[tiab] OR Dyslipidaemia*[tiab] OR Dyslipoproteinemi*[tiab] OR Hyperlipidemia*[tiab] OR Hyperlipemi*[tiab] OR Lipidemi*[tiab] OR Lipemi*[tiab] OR Hyperlipoprotein*[tiab] OR Lipid[tiab] OR lipids[tiab] OR Lipoprotein*[tiab] OR Triglycerid*[tiab] OR triacylglycerol[tiab] OR Fasting TG[tiab] OR Apolipoprotein*[tiab] OR ApoB100[tiab] OR ApoB[tiab] OR Apo B[tiab] OR Apo B100[tiab]	
#1	Search "Sugars"[Mesh:noexp] OR "Monosaccharides"[Mesh:noexp] OR "Fructose"[Mesh] OR "Galactose"[Mesh] OR "Disaccharides"[Mesh:noexp] OR "Sucrose"[Mesh:noexp] OR "Lactose"[Mesh] OR "Trehalose"[Mesh] OR "Maltose"[Mesh] OR "Dietary Sugars"[Mesh] OR "Dietary Sucrose"[Mesh] OR "Honey"[Mesh] OR "Molasses"[Mesh] OR "Carbonated Beverages"[Mesh] OR "Energy Drinks"[Mesh] OR "Fruit and Vegetable Juices"[Mesh] OR "Beverages/adverse effects"[Mesh] OR "Candy"[Mesh] OR "Chocolate"[Mesh] OR ("Food"[Mesh:noexp] OR "Diet"[Mesh] OR "Eating"[Mesh] OR "Energy intake"[Mesh]) AND ("Glucose"[Mesh:noexp]) OR "Dietary Carbohydrates"[Mesh:noexp] OR ((Sugar*[tiab] OR Sucrose*[tiab] OR Fructose*[tiab] OR Galactose*[tiab] OR Glucose*[tiab] OR Lactose*[tiab] OR Trehalose*[tiab] OR Maltose*[tiab]) AND (diet[tiab] OR diets[tiab] OR dieta*[tiab] OR diete*[tiab] OR intak*[tiab] OR consum*[tiab] OR feed*[tiab] OR food[tiab] OR foods[tiab] OR supplement*[tiab])) OR Disaccharide*[tiab] OR Di-saccharide*[tiab] OR Monosaccharide*[tiab] OR Mono-saccharide*[tiab] OR Syrup*[tiab] OR Honey[tiab] OR Candy[tiab] OR candies[tiab] OR sweet[tiab] OR sweets[tiab] OR sweetened[tiab] OR Pastry[tiab] OR pastries[tiab] OR confection*[tiab] OR patisserie[tiab] OR soft drink*[tiab] OR Softdrink*[tiab] OR soft beverage*[tiab] OR Softbeverage*[tiab] OR fizzy drink*[tiab] OR carbonated drink*[tiab] OR carbonated beverage*[tiab] OR soda drink*[tiab] OR soda beverage*[tiab] OR energy drink*[tiab] OR energy beverage*[tiab] OR sports drink*[tiab] OR sports beverage*[tiab] OR sport drink*[tiab] OR sport beverage*[tiab] OR energy beverage*[tiab] OR sugar drink*[tiab] OR sugar beverage*[tiab] OR ((SSBs[tiab] OR SSDs[tiab] OR SSB[tiab] OR SSD[tiab]) AND (beverage*[tiab] OR soda*[tiab] OR drink*[tiab])) OR fruit drink*[tiab] OR fruit beverage*[tiab] OR Juice*[tiab] OR Smoothie*[tiab]	240732

Search strings to identify systematic reviews and clinical trials adapted from CADTH's Database Search Filters: CADTH database search filters [Internet]. Ottawa: CADTH; 2016. Available from: /resources/finding-evidence

### Scopus

Date of the search: 23 July 2018

History Count	Search terms	Results
#1	((((( TITLE-ABS-KEY (( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/10 ( diet OR diets OR dieta* OR diete* ) ) OR ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/5 ( intak* OR consum* OR feed*	5,778



	<p>OR food OR foods OR supplement* )) OR disaccharide* OR "di saccharide" OR "di saccharides" OR monosaccharide* OR "mono saccharide" OR "mono saccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sweets OR sweetened OR pastry OR pastries OR confection* OR patisserie OR softdrink* OR softbeverage* OR (( soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR fruit* OR sugar* ) W/5 ( drink* OR beverage* )) OR (( ssbs OR ssds OR ssb OR ssd ) AND ( beverage* OR soda* OR drink* )) OR juice* OR smoothie* ) OR TITLE-ABS ( glucose* W/10 ( diet OR diets OR dieta* OR diete* )) OR TITLE-ABS ( glucose* W/5 ( intak* OR consum* OR feed* OR food OR foods OR supplement* )) ) AND ( ( TITLE-ABS-KEY ( adipos* OR ( fat OR fats ) W/5 ( pads OR pad OR body )) OR ( fatty W/5 tissue ) OR ( ( abdominal OR intraabdominal OR distribut* OR ectopic ) W/5 ( fat )) OR ( ( weight ) W/5 ( gain OR loss OR chang* OR reduc* OR maint* OR watch* OR variation* OR control* OR body OR lean OR increm* )) OR "waist circumference" OR "abdominal diameter" OR obese* OR obes* OR obeso* OR overweight* OR ( body ) W/5 ( size OR mass OR composition* OR constitution* )) OR bmi )) ) AND ( ( TITLE-ABS-KEY ( prospective OR longitudinal OR observational OR followup OR "follow up" OR ( nested W/3 ( stud* OR analys* )) OR ( case* W/3 control* ) OR ( participant* OR group ) W/3 follow* ) OR "control group" OR "control groups" )) ) OR ( TITLE-ABS-KEY ( randomized OR randomised OR placebo OR randomly OR trial OR groups OR ( singl* OR doubl* OR trebl* OR tripl* ) AND ( mask* OR blind* OR dumm* )) OR ( crossover OR "cross over" ) AND ( study OR studies OR design* OR method* OR procedure OR comparison )) ) OR ( TITLE-ABS-KEY ( ( systematic* ) W/3 ( review* OR overview* )) OR ( ( methodologic* ) W/3 ( review* OR overview* )) OR ( ( quantitative ) W/3 ( review* OR overview* OR synthes* )) OR ( ( research ) W/3 ( integrati* OR overview* )) OR ( ( integrative ) W/3 ( review* OR overview* )) OR ( ( collaborative ) W/3 ( review* OR overview* )) OR ( pool* W/3 analy* ) OR ( ( data ) W/1 ( synthes* OR extraction* OR abstraction* )) OR handsearch* OR "hand search" OR "hand searches" OR "hand searching" OR "mantel haenszel" OR peto OR "der simonian" OR dersimonian OR "fixed effect" OR "fixed effects" OR "latin square" OR "latin squares" OR "meta analysis" OR "meta analyses" OR "met analysis" OR "met analyses" OR metaanaly* OR metanaly* OR "meta regression" OR "meta regressions" OR metaregression* OR medline OR cochrane OR pubmed OR medlars OR embase OR cinahl OR ( comparative W/3 ( efficacy OR effectiveness )) OR "outcomes research" OR "relative effectiveness" OR ( ( indirect OR "indirect treatment" OR "mixed treatment" ) W/3 ( comparison )) ) ) ) AND PUBYEAR &gt; 2010 ) AND NOT ( ( TITLE-ABS-KEY ( animal OR animals OR rat OR rats OR mouse OR mice OR murine OR rodent OR rodents OR hamster OR hamsters OR dogs OR dog OR cats OR monkey OR monkeys OR "guinea pig" OR "guinea pigs" ) OR TITLE ( pig OR pigs OR porcine OR rabbit OR rabbits OR cow OR bovine OR sheep OR ovine OR horse OR horses )) ) AND ( DOCTYPE ( ar ) OR DOCTYPE ( re ) OR DOCTYPE ( le ) OR DOCTYPE ( no ) OR DOCTYPE ( sh ) OR DOCTYPE ( er ) AND LANGUAGE ( english )) )</p>	
#2	<p>((((( TITLE-ABS-KEY ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/10 ( diet OR diets OR dieta* OR diete* )) OR ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/5 ( intak* OR consum* OR feed* OR food OR foods OR supplement* )) ) OR disaccharide* OR "di saccharide" OR "di saccharides" OR monosaccharide* OR "mono saccharide" OR "mono saccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sweets OR sweetened OR pastry OR pastries OR confection* OR patisserie OR softdrink* OR softbeverage* OR (( soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR fruit* OR sugar* ) W/5 ( drink* OR beverage* )) OR (( ssbs OR ssds OR ssb OR ssd ) AND ( beverage* OR soda* OR drink* )) OR juice* OR smoothie* ) OR TITLE-ABS ( glucose* W/10 ( diet OR diets OR dieta* OR diete* )) OR TITLE-ABS ( glucose* W/5 ( intak* OR consum* OR feed* OR food OR foods OR supplement* )) ) ) AND ( TITLE-ABS-KEY ( apoplex* OR "acute coronary syndrome" OR angina* OR stenocardia OR ( heart OR coronary OR cardia</p>	4,184



<p>c ) W/5 ( disease* OR disorder* OR event* OR risk* OR complication* OR outcome* OR morbidit* OR mortalit* OR death* OR failure* ) ) OR chd O R chds OR ( ( "heart muscle" OR "cardiac muscle" OR myocardial OR myocardium OR cardiac OR coronary OR heart OR transient OR cardiomyopath* ) W/5 ( ischemi* OR ischaemi* ) ) OR ( ( myocardial OR heart ) W/5 ( infarct* OR attack ) ) OR stemi OR nstemi O R stroke* OR "blood pressure" OR "arterial pressure" OR diastolic OR systolic OR bloodpressure OR prehypertens* OR hypertens* OR atherosclero* OR "ldl c" OR "hdl c" OR "alpha-lipoprotein cholesterol" OR cholesterol* OR hypercholest* OR hypertriglycer* OR dyslipi demi* OR dislipidaemi* OR dyslipoproteinemi* OR hyperlipidemia* OR hyper lipidaemia* OR hyperlipemi* OR lipidemi* OR lipidaemi* OR lipemi* OR hy perlipoprotein* OR lipid OR lipids OR lipoprotein* OR triglycerid* OR triacyl glycerol OR "fasting tg" OR apolipoprotein* OR apob100 OR apob OR "apo b" OR "apo b100" ) ) ) AND ( TITLE-ABS-KEY ( prospective OR longitudinal OR observational OR followup OR "follow up" OR ( ( nested ) W/3 ( stud* OR analys* ) ) OR ( case* W/3 control* ) OR ( ( participant* OR group ) W/3 ( follow* ) ) OR "control group" OR "control groups" ) ) ) OR ( ( ( TITLE-ABS-KEY ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/10 ( diet OR diets OR dieta* OR diete* ) ) OR ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR tre halose* OR maltose* ) W/5 ( intak* OR consum* OR feed* OR food OR f oods OR supplement* ) ) ) OR disaccharide* OR "di saccharide" OR "di saccharides" OR monosaccharide* OR "mono saccharide" OR "mono saccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sw eets OR sweetened OR pastry OR pastries OR confection* OR patisserie O R softdrink* OR softbeverage* OR ( ( soft OR fizzy OR carbonated OR sod a OR energy OR sports OR sport OR fruit* OR sugar* ) W/5 ( drink* OR beverage* ) ) OR ( ( ssbs OR ssds OR ssb OR ssd ) AND ( beverage* OR soda* OR drink* ) ) OR juice* OR smoothie* ) OR TITLE-ABS ( glucose* W/10 ( diet OR diets OR dieta* OR diete* ) ) OR TITLE-ABS ( glucose* W/5 ( intak* OR consum* OR feed* OR food OR foods OR supplement* ) ) ) ) AND ( TITLE-ABS-KEY ( apoplex* OR "acute coronary syndrome" OR angina* OR stenocardia OR ( ( heart OR coronary OR cardia c ) W/5 ( disease* OR disorder* OR event* OR risk* OR complication* OR outcome* OR morbidit* OR mortalit* OR death* OR failure* ) ) OR chd O R chds OR ( ( "heart muscle" OR "cardiac muscle" OR myocardial OR myocardium OR cardiac OR coronary OR heart OR transient OR cardiomyopath* ) W/5 ( ischemi* OR ischaemi* ) ) OR ( ( myocardial OR heart ) W/5 ( infarct* OR attack ) ) OR stemi OR nstemi O R stroke* OR "blood pressure" OR "arterial pressure" OR diastolic OR systolic OR bloodpressure OR prehypertens* OR hypertens* OR atherosclero* OR "ldl c" OR "hdl c" OR "alpha-lipoprotein cholesterol" OR cholesterol* OR hypercholest* OR hypertriglycer* OR dyslipi demi* OR dislipidaemi* OR dyslipoproteinemi* OR hyperlipidemia* OR hyper lipidaemia* OR hyperlipemi* OR lipidemi* OR lipidaemi* OR lipemi* OR hy perlipoprotein* OR lipid OR lipids OR lipoprotein* OR triglycerid* OR triacyl glycerol OR "fasting tg" OR apolipoprotein* OR apob100 OR apob OR "apo b" OR "apo b100" ) ) ) AND ( ( TITLE-ABS-KEY ( randomized OR randomised OR placebo OR randomly OR trial OR gro ups OR ( ( singl* OR doubl* OR trebl* OR tripl* ) AND ( mask* OR blind* OR dumm* ) ) OR ( ( crossover OR "cross over" ) AND ( study OR studies OR design* OR method* OR procedure OR comparison ) ) ) ) OR ( TITLE-ABS-KEY ( ( ( systematic* ) W/3 ( review* OR overview* ) ) OR ( ( methodologic* ) W/3 ( review* OR overview* ) ) OR ( ( quantitative ) W/3 ( review* OR ov erview* OR synthes* ) ) OR ( ( research ) W/3 ( integrati* OR overview* ) ) OR ( ( integrative ) W/3 ( review* OR overview* ) ) OR ( ( collaborative ) W/ 3 ( review* OR overview* ) ) OR ( pool* W/3 analy* ) OR ( ( data ) W/1 ( synthes* OR extraction* OR abstraction* ) ) OR handsearch* OR "hand search" OR "hand searches" OR "hand searching" OR "mantel haenszel" OR peto OR "der simonian" OR dersimonian OR "fixed effect" OR "fixed effects" OR "latin square" OR "latin squares" OR "meta</p>	
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	analysis" OR "meta analyses" OR "met analysis" OR "met analyses" OR metaanaly* OR metanaly* OR "meta regression" OR "meta regressions" OR metaregression* OR medline OR cochrane OR pubmed OR medlars OR embase OR cinahl OR ( comparative W/3 ( efficacy OR effectiveness ) ) OR "outcomes research" OR "relative effectiveness" OR ( ( indirect OR "indirect treatment" OR "mixed treatment" ) W/3 ( comparison ) ) ) ) AND PUBYEAR > 2012 ) ) AND NOT ( ( TITLE-ABS-KEY ( animal OR animals OR rat OR rats OR mouse OR mice OR murine OR rodent OR rodents OR hamster OR hamsters OR dogs OR dog OR cat s OR monkey OR monkeys OR "guinea pig" OR "guinea pigs" ) OR TITLE ( pig OR pigs OR porcine OR rabbit OR rabbits OR cow OR bovine OR sheep OR ovine OR horse OR horses ) ) ) ) AND ( DOCTYPE ( ar ) OR DOCTYPE ( re ) OR DOCTYPE ( le ) OR DOCTYPE ( no ) OR DOCT YPE ( sh ) OR DOCTYPE ( er ) AND LANGUAGE ( english ) )	
#3	(( (( TITLE-ABS-KEY ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/10 ( diet OR diets OR dieta* OR diete* ) ) OR ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/5 ( intak* OR consum* OR feed* OR food OR f oods OR supplement* ) ) ) OR disaccharide* OR "di saccharide" OR "di saccharides" OR monosaccharide* OR "mono saccharide" OR "mono saccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sw eets OR sweetened OR pastry OR pastries OR confection* OR patisserie O R softdrink* OR softbeverage* OR ( ( soft OR fizzy OR carbonated OR sod a OR energy OR sports OR sport OR fruit* OR sugar* ) W/5 ( drink* OR beverage* ) ) OR ( ( ssbs OR ssds OR ssb OR ssd ) AND ( beverage* OR soda* OR drink* ) ) OR juice* OR smoothie* ) OR TITLE-ABS ( glucose* W/10 ( diet OR diets OR dieta* OR diete* ) ) OR TITLE-ABS ( glucose* W/5 ( intak* OR consum* OR feed* OR food OR foods OR supplement* ) ) ) ) AND ( TITLE-ABS-KEY ( steatohepatit* OR steatos* OR nafld OR nash OR ( ( fat OR fatty ) W/5 ( liver OR hepat* ) ) OR cirrhos* OR ( ( fibros* OR failure* OR insuffi cienc* ) W/3 ( liver OR hepat* ) ) ) ) AND ( ( ( TITLE-ABS-KEY ( prospective OR longitudinal OR observational OR followup OR "follow up" OR ( ( nested W/3 ( stud* OR analys* ) ) OR ( case* W/3 control* ) O R ( ( participant* OR group ) W/3 follow* ) OR "control group" OR "control groups" ) ) ) OR ( TITLE-ABS-KEY ( randomized OR randomised OR placebo OR randomly OR trial OR gro ups OR ( ( singl* OR doubl* OR trebl* OR tripl* ) AND ( mask* OR blind* OR dumm* ) ) OR ( ( crossover OR "cross over" ) AND ( study OR studies OR design* OR method* OR procedure OR comparison ) ) ) ) OR ( TITLE-ABS-KEY ( ( ( systematic* ) W/3 ( review* OR overview* ) ) OR ( ( methodologic* ) W/3 ( review* OR overview* ) ) OR ( ( quantitative ) W/3 ( review* OR ov erview* OR synthes* ) ) OR ( ( research ) W/3 ( integrati* OR overview* ) ) OR ( ( integrative ) W/3 ( review* OR overview* ) ) OR ( ( collaborative ) W/ 3 ( review* OR overview* ) ) OR ( pool* W/3 analy* ) OR ( ( data ) W/1 ( synthes* OR extraction* OR abstraction* ) ) OR handsearch* OR "hand search" OR "hand searches" OR "hand searching" OR "mantel haenszel" OR peto OR "der simonian" OR dersimonian OR "fixed effect" OR "fixed effects" OR "latin square" OR "latin squares" OR "meta analysis" OR "meta analyses" OR "met analysis" OR "met analyses" OR metaanaly* OR metanaly* OR "meta regression" OR "meta regressions" OR metaregression* OR medline OR cochrane OR pubmed OR medlars OR embase OR cinahl OR ( comparative W/3 ( efficacy OR effectiveness ) ) OR "outcomes research" OR "relative effectiveness" OR ( ( indirect OR "indirect treatment" OR "mixed treatment" ) W/3 ( comparison ) ) ) ) ) ) AND NOT ( ( TITLE-ABS-KEY ( animal OR animals OR rat OR rats OR mouse OR mice OR murine OR rodent OR rodents OR hamster OR hamsters OR dogs OR dog OR cat s OR monkey OR monkeys OR "guinea pig" OR "guinea pigs" ) OR TITLE ( pig OR pigs OR porcine OR rabbit OR rabbits OR cow OR bovine OR sheep OR ovine OR horse OR horses ) ) ) ) AND ( DOCTYPE	641

	( ar ) OR DOCTYPE ( re ) OR DOCTYPE ( le ) OR DOCTYPE ( no ) OR DOCT YPE ( sh ) OR DOCTYPE ( er ) AND LANGUAGE ( english ) ) ... View More	
#4	<p>(( ( TITLE-ABS- KEY ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/10 ( diet OR diets OR dieta* OR diete* ) ) OR (( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR tre halose* OR maltose* ) W/5 ( intak* OR consum* OR feed* OR food OR f oods OR supplement* ) ) ) OR disaccharide* OR "di saccharide" OR "di saccharides" OR monosaccharide* OR "mono saccharide" OR "mono saccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sw eets OR sweetened OR pastry OR pastries OR confection* OR patisserie O R softdrink* OR softbeverage* OR ( ( soft OR fizzy OR carbonated OR sod a OR energy OR sports OR sport OR fruit* OR sugar* ) W/5 ( drink* OR beverage* ) ) OR ( ( ssbs OR ssds OR ssb OR ssd ) AND ( beverage* OR soda* OR drink* ) ) OR juice* OR smoothie* ) OR TITLE- ABS ( glucose* W/10 ( diet OR diets OR dieta* OR diete* ) ) OR TITLE- ABS ( glucose* W/5 ( intak* OR consum* OR feed* OR food OR foods OR supplement* ) ) ) ) AND ( TITLE-ABS- KEY ( gout OR gouty OR uric* OR hyperuricemi* OR hyperuricaemi* OR hy peruricacide* OR hyperuricacidaemi* ) ) AND ( ( TITLE-ABS- KEY ( prospective OR longitudinal OR observational OR followup OR "follow up" OR ( ( nested W/3 ( stud* OR analys* ) ) OR ( case* W/3 control* ) O R ( ( participant* OR group ) W/3 follow* ) OR "control group" OR "control groups" ) ) ) OR ( TITLE-ABS- KEY ( randomized OR randomised OR placebo OR randomly OR trial OR gro ups OR ( ( singl* OR doubl* OR trebl* OR tripl* ) AND ( mask* OR blind* OR dumm* ) ) OR ( ( crossover OR "cross over" ) AND ( study OR studies OR design* OR method* OR procedure OR comparison ) ) ) ) OR ( TITLE-ABS- KEY ( ( ( systematic* ) W/3 ( review* OR overview* ) ) OR ( ( methodologic*  ) W/3 ( review* OR overview* ) ) OR ( ( quantitative ) W/3 ( review* OR ov erview* OR synthes* ) ) OR ( ( research ) W/3 ( integrati* OR overview* ) ) OR ( ( integrative ) W/3 ( review* OR overview* ) ) OR ( ( collaborative ) W/ 3 ( review* OR overview* ) ) OR ( pool* W/3 analy* ) OR ( ( data ) W/1 ( synthes* OR extraction* OR abstraction* ) ) OR handsearch* OR "hand search" OR "hand searches" OR "hand searching" OR "mantel haenszel" OR peto OR "der simonian" OR dersimonian OR "fixed effect" OR "fixed effects" OR "latin square" OR "latin squares" OR "meta analysis" OR "meta analyses" OR "met analysis" OR "met analyses" OR metaanaly* OR metanaly* OR "meta regression" OR "meta regressions" OR metaregression* OR medline OR cochrane OR pubmed OR medlars OR embase OR cinahl OR ( comparative W/3 ( efficacy OR effectiv eness ) ) OR "outcomes research" OR "relative effectiveness" OR ( ( indirect OR "indirect treatment" OR "mixed treatment" ) W/3 ( comparison ) ) ) ) ) ) AND NOT ( ( TITLE-ABS- KEY ( animal OR animals OR rat OR rats OR mouse OR mice OR murine OR rodent OR rodents OR hamster OR hamsters OR dogs OR dog OR cat s OR monkey OR monkeys OR "guinea pig" OR "guinea pigs" ) OR TITLE ( pig OR pigs OR porcine OR rabbit OR rabbits OR cow OR bovine OR sheep OR ovine OR horse OR horses ) ) ) ) AND ( DOCTYPE ( ar ) OR DOCTYPE ( re ) OR DOCTYPE ( le ) OR DOCTYPE ( no ) OR DOCT YPE ( sh ) OR DOCTYPE ( er ) AND LANGUAGE ( english ) ) ... View More</p>	359
#5	<p>(( ( TITLE-ABS- KEY ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/10 ( diet OR diets OR dieta* OR diete* ) ) OR (( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR tre halose* OR maltose* ) W/5 ( intak* OR consum* OR feed* OR food OR f oods OR supplement* ) ) ) OR disaccharide* OR "di saccharide" OR "di saccharides" OR monosaccharide* OR "mono saccharide" OR "mono saccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sw eets OR sweetened OR pastry OR pastries OR confection* OR patisserie O R softdrink* OR softbeverage* OR ( ( soft OR fizzy OR carbonated OR sod a OR energy OR sports OR sport OR sugar* OR fruit* ) W/5 ( drink* OR beverage* ) ) OR ( ( ssbs OR ssds OR ssb OR ssd ) AND ( beverage* OR</p>	3345

	<p>soda* OR drink*) ) OR juice* OR smoothie* ) ) AND ( ( ( TITLE-ABS-KEY ( diabet* W/5 ( "type 2" OR "type ii" OR type2 OR typeii ) ) ) ) OR ( TITLE-ABS-KEY ( ( ( "non-insulin" OR noninsulin ) W/1 depend* ) AND diabet* ) OR niddm ) ) OR ( TITLE-ABS-KEY ( hyperinsulinism OR hyperinsulinemia OR ( ( ( resistan* OR sensitivity OR tolerance OR intolerance OR control OR fasting ) W/5 insulin ) ) OR "metabolic syndrome" OR ( ( blood W/5 glucose ) ) OR "metabolic disorder" OR "metabolic disorders" ) ) OR ( TITLE-ABS-KEY ( hyperglycemia* OR ( ( tolerance OR intolerance OR fasting ) W/5 glucose ) OR ( ( glycated OR glycosylated ) W/5 ( hemoglobin OR haemoglobin ) ) OR "hemoglobin a" OR "haemoglobin a" OR "hemoglobin a1c" OR "haemoglobin a1c" OR "hemoglobin a1c" OR "haemoglobin a1c" OR hba1c OR hba1 OR "hba 1c" OR "hb a1c" OR "hb a1c" OR ( fructosamine* W/5 ( blood OR serum OR plasma OR level ) ) OR ( glucose* W/5 ( homeostasis OR homeostases ) ) ) ) ) AND ( ( ( TITLE-ABS-KEY ( prospective OR longitudinal OR observational OR followup OR "follow up" OR ( ( nested W/3 ( stud* OR analys* ) ) OR ( case* W/3 control* ) ) OR ( ( participant* OR group ) W/3 follow* ) OR "control group" OR "control groups" ) ) ) OR ( TITLE-ABS-KEY ( randomized OR randomised OR placebo OR randomly OR trial OR groups OR ( ( singl* OR doubl* OR trebl* OR tripl* ) AND ( mask* OR blind* OR dumm* ) ) OR ( ( crossover OR "cross over" ) AND ( study OR studies OR design* OR method* OR procedure OR comparison ) ) ) ) OR ( TITLE-ABS-KEY ( ( ( systematic* ) W/3 ( review* OR overview* ) ) OR ( ( methodologic* ) W/3 ( review* OR overview* ) ) OR ( ( quantitative ) W/3 ( review* OR overview* OR synthes* ) ) OR ( ( research ) W/3 ( integrati* OR overview* ) ) OR ( ( integrative ) W/3 ( review* OR overview* ) ) OR ( ( collaborative ) W/3 ( review* OR overview* ) ) OR ( pool* W/3 analy* ) OR ( ( data ) W/1 ( synthes* OR extraction* OR abstraction* ) ) OR handsearch* OR "hand search" OR "hand searches" OR "hand searching" OR "mantel haenszel" OR peto OR "der simonian" OR dersimonian OR "fixed effect" OR "fixed effects" OR "latin square" OR "latin squares" OR "meta analysis" OR "meta analyses" OR "met analysis" OR "met analyses" OR metaanaly* OR metanaly* OR "meta regression" OR "meta regressions" OR metaregression* OR medline OR cochrane OR pubmed OR medlars OR embase OR cinahl OR ( comparative W/3 ( efficacy OR effectiveness ) ) OR "outcomes research" OR "relative effectiveness" OR ( ( indirect OR "indirect treatment" OR "mixed treatment" ) W/3 ( comparison ) ) ) ) ) ) AND NOT ( ( TITLE-ABS-KEY ( animal OR animals OR rat OR rats OR mouse OR mice OR murine OR rodent OR rodents OR hamster OR hamsters OR dogs OR dog OR cats OR monkey OR monkeys OR "guinea pig" OR "guinea pigs" ) OR TITLE ( pig OR pigs OR porcine OR rabbit OR rabbits OR cow OR bovine OR sheep OR ovine OR horse OR horses ) ) ) ) AND ( DOCTYPE ( ar ) OR DOCTYPE ( re ) OR DOCTYPE ( le ) OR DOCTYPE ( no ) OR DOCTYPE ( sh ) OR DOCTYPE ( er ) AND LANGUAGE ( english ) ) ... View More</p>	
#6	<p>( ( ( TITLE-ABS-KEY ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/10 ( diet OR diets OR dieta* OR diete* ) ) OR ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/5 ( intak* OR consum* OR feed* OR food OR foods OR supplement* ) ) ) OR disaccharide* OR "di saccharide" OR "di saccharides" OR monosaccharide* OR "mono saccharide" OR "mono saccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sweets OR sweetened OR pastry OR pastries OR confection* OR patisserie OR softdrink* OR softbeverage* OR ( ( soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR sugar* OR fruit* ) W/5 ( drink* OR beverage* ) ) OR ( ( ssbs OR ssds OR ssb OR ssd ) AND ( beverage* OR soda* OR drink* ) ) OR juice* OR smoothie* ) ) AND ( TITLE-ABS-KEY ( ( diabet* AND ( pregnan* OR gestational ) ) OR gdm ) ) AND ( ( ( TIT</p>	170

	<p>LE-ABS-  KEY ( prospective OR longitudinal OR observational OR followup OR "follow up" OR ( ( nested W/3 ( stud* OR analys* ) ) OR ( case* W/3 control* ) ) OR ( ( participant* OR group ) W/3 follow* ) OR "control group" OR "control groups" ) ) ) OR ( TITLE-ABS-  KEY ( randomized OR randomised OR placebo OR randomly OR trial OR groups OR ( ( singl* OR doubl* OR trebl* OR tripl* ) AND ( mask* OR blind* OR dumm* ) ) OR ( ( crossover OR "cross over" ) AND ( study OR studies OR design* OR method* OR procedure OR comparison ) ) ) ) OR ( TITLE-ABS-  KEY ( ( ( systematic* ) W/3 ( review* OR overview* ) ) OR ( ( methodologic* ) W/3 ( review* OR overview* ) ) OR ( ( quantitative ) W/3 ( review* OR overview* OR syntheses* ) ) OR ( ( research ) W/3 ( integrati* OR overview* ) ) OR ( ( integrative ) W/3 ( review* OR overview* ) ) OR ( ( collaborative ) W/3 ( review* OR overview* ) ) OR ( pool* W/3 analy* ) OR ( ( data ) W/1 ( syntheses* OR extraction* OR abstraction* ) ) OR handsearch* OR "hand search" OR "hand searches" OR "hand searching" OR "mantel haenszel" OR peto OR "der simonian" OR dersimonian OR "fixed effect" OR "fixed effects" OR "latin square" OR "latin squares" OR "meta analysis" OR "meta analyses" OR "met analysis" OR "met analyses" OR metaanaly* OR metanaly* OR "meta regression" OR "meta regressions" OR metaregression* OR medline OR cochrane OR pubmed OR medlars OR embase OR cinahl OR ( comparative W/3 ( efficacy OR effectiveness ) ) OR "outcomes research" OR "relative effectiveness" OR ( ( indirect OR "indirect treatment" OR "mixed treatment" ) W/3 ( comparison ) ) ) ) ) ) AND NOT ( ( TITLE-ABS-  KEY ( animal OR animals OR rat OR rats OR mouse OR mice OR murine OR rodent OR rodents OR hamster OR hamsters OR dogs OR dog OR cats OR monkey OR monkeys OR "guinea pig" OR "guinea pigs" ) OR TITLE ( pig OR pigs OR porcine OR rabbit OR rabbits OR cow OR bovine OR sheep OR ovine OR horse OR horses ) ) ) ) AND ( DOCTYPE ( ar ) OR DOCTYPE ( re ) OR DOCTYPE ( le ) OR DOCTYPE ( no ) OR DOCTYPE ( sh ) OR DOCTYPE ( er ) AND LANGUAGE ( english ) )</p>	
#7	#1 OR #2 OR #3 OR #4 OR #5 OR #6	10923

Search strings to identify systematic reviews and clinical trials adapted from CADTH's Database Search Filters: CADTH database search filters [Internet]. Ottawa: CADTH; 2016. Available from: /resources/finding-evidence



## A.2. Dental caries

**Cochrane Central Register of Controlled Trials (CENTRAL), Cochrane Library. Cochrane Database of Systematic Reviews (CDSR) and Database of Abstracts of Reviews of Effects**

Date of the search: 25 July 2018

ID	Search	Hits
#1	[mh ^sugars] or [mh ^Monosaccharides] or [mh fructose] or [mh galactose] or [mh ^Disaccharides] or [mh ^Sucrose] or [mh lactose] or [mh trehalose] or [mh ^"dietary carbohydrates"] or ([mh ^glucose] and ([mh ^Food] or [mh Diet] or [mh Eating] or [mh "Energy intake"])) or [mh maltose] or [mh "dietary sugars"] or [mh "dietary sucrose"] or [mh honey] or [mh molasses] or [mh "Carbonated Beverages"] or [mh "Energy Drinks"] or [mh "Fruit and Vegetable Juices"] or [mh Beverages/AE] or [mh Candy] or [mh Chocolate] or ((sugar*:ti,ab or sucrose*:ti,ab,kw or fructose*:ti,ab,kw or galactose*:ti,ab,kw or glucose*:ti,ab,kw or lactose*:ti,ab,kw or trehalose*:ti,ab,kw or maltose*:ti,ab,kw) and (diet:ti,ab,kw or diets:ti,ab,kw or dieta*:ti,ab,kw or diete*:ti,ab,kw)) or (glucose* near/5 (diet or diets or dieta* or diete*)):ti,ab,kw or ((sugar* or sucrose* or fructose* or galactose* or glucose* or lactose* or trehalose* or maltose*) near/5 (intak* or consum* or feed* or food or foods or supplement*)):ti,ab,kw or disaccharide*:ti,ab,kw or 'di saccharide':ti,ab,kw or 'di saccharides':ti,ab,kw or monosaccharide*:ti,ab,kw or 'mono saccharide':ti,ab,kw or 'mono saccharides':ti,ab,kw or syrup*:ti,ab,kw or honey:ti,ab,kw or candy:ti,ab,kw or candies:ti,ab,kw or sweet:ti,ab,kw or sweets:ti,ab,kw or sweetened:ti,ab,kw or pastry:ti,ab,kw or pastries:ti,ab,kw or confection*:ti,ab,kw or patisserie:ti,ab,kw or softdrink*:ti,ab,kw or softbeverage*:ti,ab,kw or ((soft or fizzy or carbonated or soda or energy or sports or fruit* or sport or sugar*) near/5 (drink* or beverage*)):ti,ab,kw or ((ssbs:ti,ab,kw or ssds:ti,ab,kw or ssb:ti,ab,kw or ssd:ti,ab,kw) and (beverage*:ti,ab,kw or soda*:ti,ab,kw or drink*:ti,ab,kw)) or juice*:ti,ab,kw or smoothie*:ti,ab,kw	20058
#2	[mh "Oral health"] or [mh "Dental Caries"] or [mh "Cariogenic Agents"] or [mh "DMF Index"] or [mh "Diet, Cariogenic"] or ((oral or dental) near/3 health):ti,ab,kw or caries:ti,ab,kw or carious:ti,ab,kw or cariogen*:ti,ab,kw or ((dental or teeth or tooth or root*) near/3 (decay* or 'white spot' or 'white spots' or cavit*)):ti,ab,kw or dmft:ti,ab,kw or dmft:ti,ab,kw or dmfs:ti,ab,kw or dft:ti,ab,kw or def:ti,ab,kw or defs:ti,ab,kw	8373
#3	#1 and #2 in Cochrane Reviews (Reviews and Protocols), Other Reviews and Trials	418
#4	[mh animals] not [mh humans]	8290
#5	#3 not #4	397
#6	#5 Publication Year from 2011	131

## Embase

Date of the search: 24 July 2018

No.	Query	Results
#9	#5 NOT #6 AND [english]/lim AND [2011-2018]/py	1290
#8	#5 NOT #6 AND [english]/lim	3967
#7	#5 NOT #6	4651
#6	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [note]/lim	5177607
#5	#3 NOT #4	4991
#4	('animal'/exp OR 'animal experiment'/exp) NOT ('human experiment'/exp OR 'human'/exp)	5471833
#3	#1 AND #2	5669
#2	'dental health'/exp OR 'dental caries'/exp OR 'cariogenic agent'/exp OR 'cariogenic diet'/exp OR 'caries assessment'/exp OR (((oral OR dental) NEAR/5 health):ti,ab) OR caries:ti,ab OR carious:ti,ab OR cariogen*:ti,ab OR ((dental:ti,ab OR teeth:ti,ab OR tooth:ti,ab OR root:ti,ab OR roots:ti,ab) AND	132869

	(decay*:ti,ab OR 'white spot':ti,ab OR 'white spots':ti,ab OR cavit*:ti,ab)) OR dmft:ti,ab OR dmft:ti,ab OR dmfs:ti,ab OR dft:ti,ab OR dft:ti,ab OR defs:ti,ab	
#1	'sugar intake'/exp OR 'glucose intake'/exp OR 'fructose intake'/exp OR 'lactose intake'/exp OR 'sugar'/exp OR 'monosaccharide'/de OR 'fructose'/exp OR 'galactose'/exp OR 'disaccharide'/de OR 'sucrose'/exp OR 'maltose'/exp OR 'lactose'/exp OR 'trehalose'/exp OR ('glucose'/mj AND ('dietary intake'/de OR 'dietary reference intake'/exp OR 'diet'/exp OR 'food intake'/de OR 'food'/exp OR 'eating'/exp OR 'supplementation'/exp)) OR 'syrup'/exp OR 'honey'/exp OR 'molasses'/exp OR 'soft drink'/exp OR 'energy drink'/exp OR 'sports drink'/exp OR 'fruit and vegetable juice'/exp OR 'carbonated beverage'/exp OR 'sweetened beverage'/exp OR 'confectionary'/de OR 'sugar confectionary'/exp OR ((sugar*:ti,ab OR sucrose*:ti,ab OR fructose*:ti,ab OR galactose*:ti,ab OR glucose*:ti OR lactose*:ti,ab OR trehalose*:ti,ab OR maltose*:ti,ab) AND (diet:ti,ab OR diets:ti,ab OR dieta*:ti,ab OR diete*:ti,ab)) OR ((glucose* NEAR/10 (diet OR diets OR dieta* OR diete*)):ti,ab) OR (((sugar* OR sucrose* OR fructose* OR galactose* OR glucose* OR lactose* O R trehalose* OR maltose*) NEAR/5 (intak* OR consum* OR feed* OR food OR foods OR supplement*)):ti,ab) OR disaccharide*:ti,ab OR 'di saccharide':ti,ab OR 'di saccharides':ti,ab OR monosaccharide*:ti,ab OR 'mono saccharide':ti,ab OR 'mono saccharides':ti,ab OR syrup*:ti,ab OR honey*:ti,ab OR candy:ti,ab OR candies:ti,ab OR sweet:ti,ab OR sweets:ti,ab OR sweetened:ti,ab OR pastry:ti,ab OR pastries:ti,ab OR confection*:ti,ab OR patisserie:ti,ab OR softdrink*:ti,ab OR softbeverage*:ti,ab OR (((soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR fruit* OR sugar*) NEAR/5 (drink* OR beverage*)):ti,ab) OR ((ssbs:ti,ab OR ssds:ti,ab OR ssb:ti,ab OR ssd:ti,ab) AND (beverage*:ti,ab OR soda*:ti,ab OR drink*:ti,ab)) OR juice*:ti,ab OR smoothie*:ti,ab	326802

## PubMed

Date of the search: 24 July 2018

Search	Query	Items found
#12	Search (#11) AND ("2011"[Date - Publication] : "3000"[Date - Publication])	1393
#11	Search #9 AND #10	4284
#10	Search ENGLISH[Language]	24030092
#9	Search #7 NOT #8	5008
#8	Search "comment"[Publication Type] OR "editorial"[Publication Type] OR "congresses"[Publication Type]	1126175
#7	Search #5 NOT #6	5142
#6	Search (rat[ti] OR rats[ti] OR mouse[ti] OR mice[ti] OR murine[ti] OR rodent[ti] OR rodents[ti] OR hamster[ti] OR hamsters[ti] OR pig[ti] OR pigs[ti] OR porcine[ti] OR rabbit[ti] OR rabbits[ti] OR animal[ti] OR animals[ti] OR dogs[ti] OR dog[ti] OR cats[ti] OR cow[ti] OR bovine[ti] OR sheep[ti] OR ovine[ti] OR monkey[ti] OR monkeys[ti] OR horse[ti] OR horses[ti]) NOT medline[sb]	104202
#5	Search #3 NOT #4	5142
#4	Search "Animals"[Mesh] NOT "Humans"[Mesh]	4477571
#3	Search #1 AND #2	5728
#2	Search "Oral health"[Mesh] OR "Dental Caries"[Mesh] OR "Cariogenic Agents"[Mesh] OR "DMF Index"[Mesh] OR "Diet, Cariogenic"[Mesh] OR "oral health"[tiab] OR dental health[tiab] OR Caries[tiab] OR Carious[tiab] OR Cariogen*[tiab] OR ((Dental[tiab] OR teeth[tiab] OR tooth[tiab] OR root*[tiab]) AND (decay*[tiab] OR white spot*[tiab] OR cavit*[tiab])) OR DMF[tiab] OR DMFT[tiab] OR DMFS[tiab] OR DFT[tiab] OR DEFT[tiab] OR DEFS[tiab]	136093
#1	Search "Sugars"[Mesh:noexp] OR "Monosaccharides"[Mesh:noexp] OR "Fructose"[Mesh] OR "Galactose"[Mesh] OR "Disaccharides"[Mesh:noexp] OR "Sucrose"[Mesh:noexp] OR "Lactose"[Mesh] OR "Trehalose"[Mesh] OR "Maltose"[Mesh] OR "Dietary Sugars"[Mesh] OR "Dietary Sucrose"[Mesh] OR "Honey"[Mesh] OR "Molasses"[Mesh] OR "Carbonated Beverages"[Mesh] OR "Energy Drinks"[Mesh] OR "Fruit and Vegetable Juices"[Mesh] OR	240789

	<p>"Beverages/adverse effects"[Mesh] OR "Candy"[Mesh] OR "Chocolate"[Mesh] OR ("Food"[Mesh:noexp] OR "Diet"[Mesh] OR "Eating"[Mesh] OR "Energy intake"[Mesh]) AND ("Glucose"[Mesh:noexp])) OR "Dietary Carbohydrates"[Mesh:noexp] OR ((Sugar*[tiab] OR Sucrose*[tiab] OR Fructose*[tiab] OR Galactose*[tiab] OR Glucose*[ti] OR Lactose*[tiab] OR Trehalose*[tiab] OR Maltose*[tiab]) AND (diet[tiab] OR diets[tiab] OR dieta*[tiab] OR diete*[tiab] OR intak*[tiab] OR consum*[tiab] OR feed*[tiab] OR food[tiab] OR foods[tiab] OR supplement*[tiab])) OR Disaccharide*[tiab] OR Disaccharide*[tiab] OR Monosaccharide*[tiab] OR Mono-saccharide*[tiab] OR Syrup*[tiab] OR Honey[tiab] OR Candy[tiab] OR candies[tiab] OR sweet[tiab] OR sweets[tiab] OR sweetened[tiab] OR Pastry[tiab] OR pastries[tiab] OR confection*[tiab] OR patisserie[tiab] OR soft drink*[tiab] OR Softdrink*[tiab] OR soft beverage*[tiab] OR Softbeverage*[tiab] OR fizzy drink*[tiab] OR carbonated drink*[tiab] OR carbonated beverage*[tiab] OR soda drink*[tiab] OR soda beverage*[tiab] OR energy drink*[tiab] OR energy beverage*[tiab] OR sports drink*[tiab] OR sports beverage*[tiab] OR sport drink*[tiab] OR sport beverage*[tiab] OR energy beverage*[tiab] OR sugar drink*[tiab] OR sugar beverage*[tiab] OR ((SSBs[tiab] OR SSDs[tiab] OR SSB[tiab] OR SSD[tiab]) AND (beverage*[tiab] OR soda*[tiab] OR drink*[tiab])) OR fruit drink*[tiab] OR fruit beverage*[tiab] OR Juice*[tiab] OR Smoothie*[tiab]</p>	
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### Scopus

Date of the search: 24 July 2018

History Count	Search Terms	Results
11	<p>(( TITLE-ABS-KEY ((( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/10 ( diet OR diets OR dieta* OR diete* ) ) OR ((( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/5 ( intak* OR consum* OR feed* OR food OR foods OR supplement* ) ) ) OR disaccharide* OR "di saccharide" OR "di saccharides" OR monosaccharide* OR "mono saccharide" OR "mono saccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sweets OR sweetened OR pastry OR pastries OR confection* OR patisserie OR softdrink* OR softbeverage* OR (( soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR fruit* OR sugar* ) W/5 ( drink* OR beverage* ) ) OR (( ssbs OR ssds OR ssb OR ssd ) AND ( beverage* OR soda* OR drink* ) ) OR juice* OR smoothie* ) OR TITLE-ABS ( glucose* W/10 ( diet OR diets OR dieta* OR diete* ) ) OR TITLE-ABS ( glucose* W/5 ( intak* OR consum* OR feed* OR food OR foods OR supplement* ) ) ) AND (( TITLE-ABS-KEY ((( oral OR dental ) W/5 ( health ) ) OR caries OR carious OR cariogen* OR dmft OR dmft OR dmfs OR dft OR deft OR defs ) ) OR ( TITLE-ABS-KEY ((( dental OR teeth OR tooth OR root* ) W/5 ( decay* OR "white spot" OR "white spots" OR cavit* ) ) ) ) ) AND NOT (( TITLE-ABS-KEY ( animal OR animals OR rat OR rats OR mouse OR mice OR murine OR rodent OR rodents OR hamster OR hamsters OR dogs OR dog OR cats OR monkey OR monkeys OR "guinea pig" OR "guinea pigs" ) ) OR ( TITLE ( pig OR pigs OR porcine OR rabbit OR rabbits OR cow OR bovine OR sheep OR ovine OR horse OR horses ) ) ) AND ( LIMIT-TO ( DOCTYPE , "ar" ) OR LIMIT-TO ( DOCTYPE , "re" ) OR LIMIT-TO ( DOCTYPE , "le" ) OR LIMIT-TO ( DOCTYPE , "no" ) OR LIMIT-TO ( DOCTYPE , "ip" ) OR LIMIT-TO ( DOCTYPE , "er" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) ) AND ( LIMIT-TO ( PUBYEAR , 2018 ) OR LIMIT-TO ( PUBYEAR , 2017 ) OR LIMIT-TO ( PUBYEAR , 2016 ) OR LIMIT-TO ( PUBYEAR , 2015 ) OR LIMIT-TO ( PUBYEAR , 2014 ) OR LIMIT-TO ( PUBYEAR , 2013 ) OR LIMIT-TO ( PUBYEAR , 2012 ) OR LIMIT-TO ( PUBYEAR , 2011 ) ) View Less</p>	1,433
6	<p>(( TITLE-ABS-KEY ((( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/10 ( diet OR diets OR dieta* OR diete* ) ) OR ((( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR tre</p>	3,614

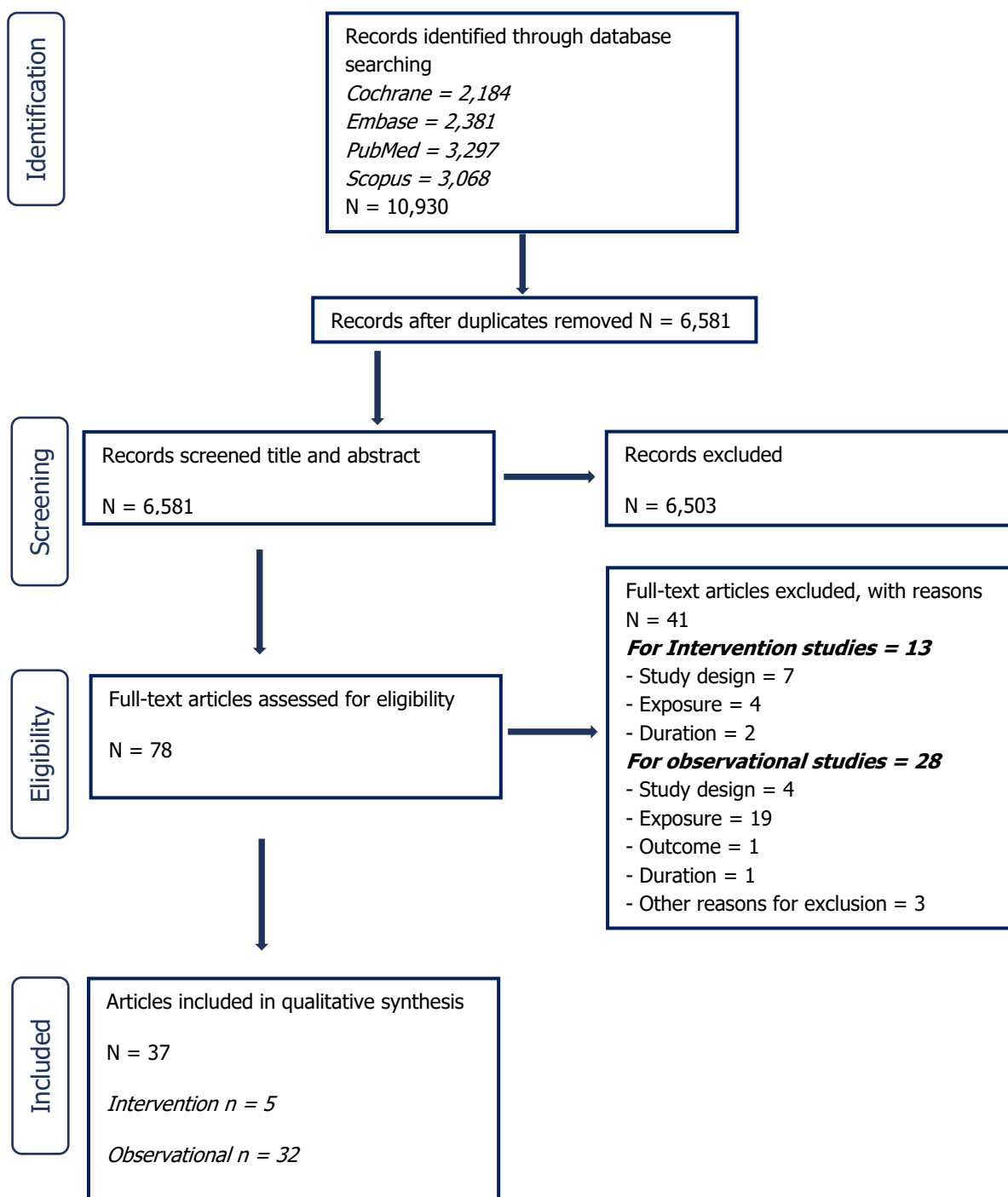
	halose* OR maltose* ) W/5 ( intak* OR consum* OR feed* OR food OR f oods OR supplement* ) ) ) OR disaccharide* OR "di saccharide" OR "di saccharides" OR monosaccharide* OR "mono saccharide" OR "mono saccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sw eets OR sweetened OR pastry OR pastries OR confection* OR patisserie O R softdrink* OR softbeverage* OR ( ( soft OR fizzy OR carbonated OR sod a OR energy OR sports OR sport OR fruit* OR sugar* ) W/5 ( drink* OR beverage* ) ) OR ( ( ssbs OR ssds OR ssb OR ssd ) AND ( beverage* OR soda* OR drink* ) ) OR juice* OR smoothie* ) OR TITLE- ABS ( glucose* W/10 ( diet OR diets OR dieta* OR diete* ) ) OR TITLE- ABS ( glucose* W/5 ( intak* OR consum* OR feed* OR food OR foods OR supplement* ) ) ) AND ( ( TITLE-ABS- KEY ( ( ( oral OR dental ) W/5 ( health ) ) OR caries OR carious OR carioge n* OR dmf OR dmft OR dmfs OR dft OR deft OR defs ) ) OR ( TITLE- ABS-KEY ( ( ( dental OR teeth OR tooth OR root* ) W/5 ( decay* OR "white spot" OR "white spots" OR cavit* ) ) ) ) ) AND NOT ( ( TITLE-ABS- KEY ( animal OR animals OR rat OR rats OR mouse OR mice OR murine OR rodent OR rodents OR hamster OR hamsters OR dogs OR dog OR cat s OR monkey OR monkeys OR "guinea pig" OR "guinea pigs" ) ) OR ( TITLE ( pig OR pigs OR porcine OR rabbit OR rabbits OR co w OR bovine OR sheep OR ovine OR horse OR horses ) ) ) AND ( LIMIT- TO ( DOCTYPE , "ar" ) OR LIMIT-TO ( DOCTYPE , "re" ) OR LIMIT- TO ( DOCTYPE , "le" ) OR LIMIT-TO ( DOCTYPE , "no" ) OR LIMIT- TO ( DOCTYPE , "ip" ) OR LIMIT-TO ( DOCTYPE , "er" ) ) AND ( LIMIT- TO ( LANGUAGE , "English" ) ) ) View Less	
5	(( TITLE-ABS- KEY ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/10 ( diet OR diets OR dieta* OR diete* ) ) OR (( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR tre halose* OR maltose* ) W/5 ( intak* OR consum* OR feed* OR food OR f oods OR supplement* ) ) ) OR disaccharide* OR "di saccharide" OR "di saccharides" OR monosaccharide* OR "mono saccharide" OR "mono saccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sw eets OR sweetened OR pastry OR pastries OR confection* OR patisserie O R softdrink* OR softbeverage* OR ( ( soft OR fizzy OR carbonated OR sod a OR energy OR sports OR sport OR fruit* OR sugar* ) W/5 ( drink* OR beverage* ) ) OR ( ( ssbs OR ssds OR ssb OR ssd ) AND ( beverage* OR soda* OR drink* ) ) OR juice* OR smoothie* ) OR TITLE- ABS ( glucose* W/10 ( diet OR diets OR dieta* OR diete* ) ) OR TITLE- ABS ( glucose* W/5 ( intak* OR consum* OR feed* OR food OR foods OR supplement* ) ) ) AND ( ( TITLE-ABS- KEY ( ( ( oral OR dental ) W/5 ( health ) ) OR caries OR carious OR carioge n* OR dmf OR dmft OR dmfs OR dft OR deft OR defs ) ) OR ( TITLE- ABS-KEY ( ( ( dental OR teeth OR tooth OR root* ) W/5 ( decay* OR "white spot" OR "white spots" OR cavit* ) ) ) ) ) AND NOT ( ( TITLE-ABS- KEY ( animal OR animals OR rat OR rats OR mouse OR mice OR murine OR rodent OR rodents OR hamster OR hamsters OR dogs OR dog OR cat s OR monkey OR monkeys OR "guinea pig" OR "guinea pigs" ) ) OR ( TITLE ( pig OR pigs OR porcine OR rabbit OR rabbits OR co w OR bovine OR sheep OR ovine OR horse OR horses ) ) ) View Less	4,357
4	( TITLE-ABS- KEY ( animal OR animals OR rat OR rats OR mouse OR mice OR murine OR rodent OR rodents OR hamster OR hamsters OR dogs OR dog OR cat s OR monkey OR monkeys OR "guinea pig" OR "guinea pigs" ) ) OR ( TITLE ( pig OR pigs OR porcine OR rabbit OR rabbits OR co w OR bovine OR sheep OR ovine OR horse OR horses ) ) ) View Less	7,719,391
3	( TITLE-ABS- KEY ( ( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose* ) W/10 ( diet OR diets OR dieta* OR diete* ) ) OR (( ( sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR tre halose* OR maltose* ) W/5 ( intak* OR consum* OR feed* OR food OR f oods OR supplement* ) ) ) OR disaccharide* OR "di saccharide" OR "di saccharides" OR monosaccharide* OR "mono saccharide" OR "mono saccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sw	5,221

	eets OR sweetened OR pastry OR pastries OR confection* OR patisserie OR softdrink* OR softbeverage* OR ((soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR fruit* OR sugar*) W/5 (drink* OR beverage*)) OR ((ssbs OR ssds OR ssb OR ssd) AND (beverage* OR soda* OR drink*)) OR juice* OR smoothie*) OR TITLE-ABS (glucose* W/10 (diet OR diets OR dieta* OR diete*)) OR TITLE-ABS (glucose* W/5 (intak* OR consum* OR feed* OR food OR foods OR supplement*)) AND ((TITLE-ABS-KEY (((oral OR dental) W/5 (health)) OR caries OR carious OR cariogen* OR dmf OR dmft OR dmfs OR dft OR deft OR defs)) OR (TITLE-ABS-KEY (((dental OR teeth OR tooth OR root*) W/5 (decay* OR "white spot" OR "white spots" OR cavit*))))) View Less	
2	(TITLE-ABS-KEY (((oral OR dental) W/5 (health)) OR caries OR carious OR cariogen* OR dmf OR dmft OR dmfs OR dft OR deft OR defs)) OR (TITLE-ABS-KEY (((dental OR teeth OR tooth OR root*) W/5 (decay* OR "white spot" OR "white spots" OR cavit*)))))	313,771
1	TITLE-ABS-KEY (((sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose*) W/10 (diet OR diets OR dieta* OR diete*)) OR (((sugar* OR sucrose* OR fructose* OR galactose* OR lactose* OR trehalose* OR maltose*) W/5 (intak* OR consum* OR feed* OR food OR foods OR supplement*)) OR disaccharide* OR "disaccharide" OR "disaccharides" OR monosaccharide* OR "monosaccharide" OR "monosaccharides" OR syrup* OR honey OR candy OR candies OR sweet OR sweets OR sweetened OR pastry OR pastries OR confection* OR patisserie OR softdrink* OR softbeverage* OR ((soft OR fizzy OR carbonated OR soda OR energy OR sports OR sport OR fruit* OR sugar*) W/5 (drink* OR beverage*)) OR ((ssbs OR ssds OR ssb OR ssd) AND (beverage* OR soda* OR drink*)) OR juice* OR smoothie*) OR TITLE-ABS (glucose* W/10 (diet OR diets OR dieta* OR diete*)) OR TITLE-ABS (glucose* W/5 (intak* OR consum* OR feed* OR food OR foods OR supplement*))	322,162

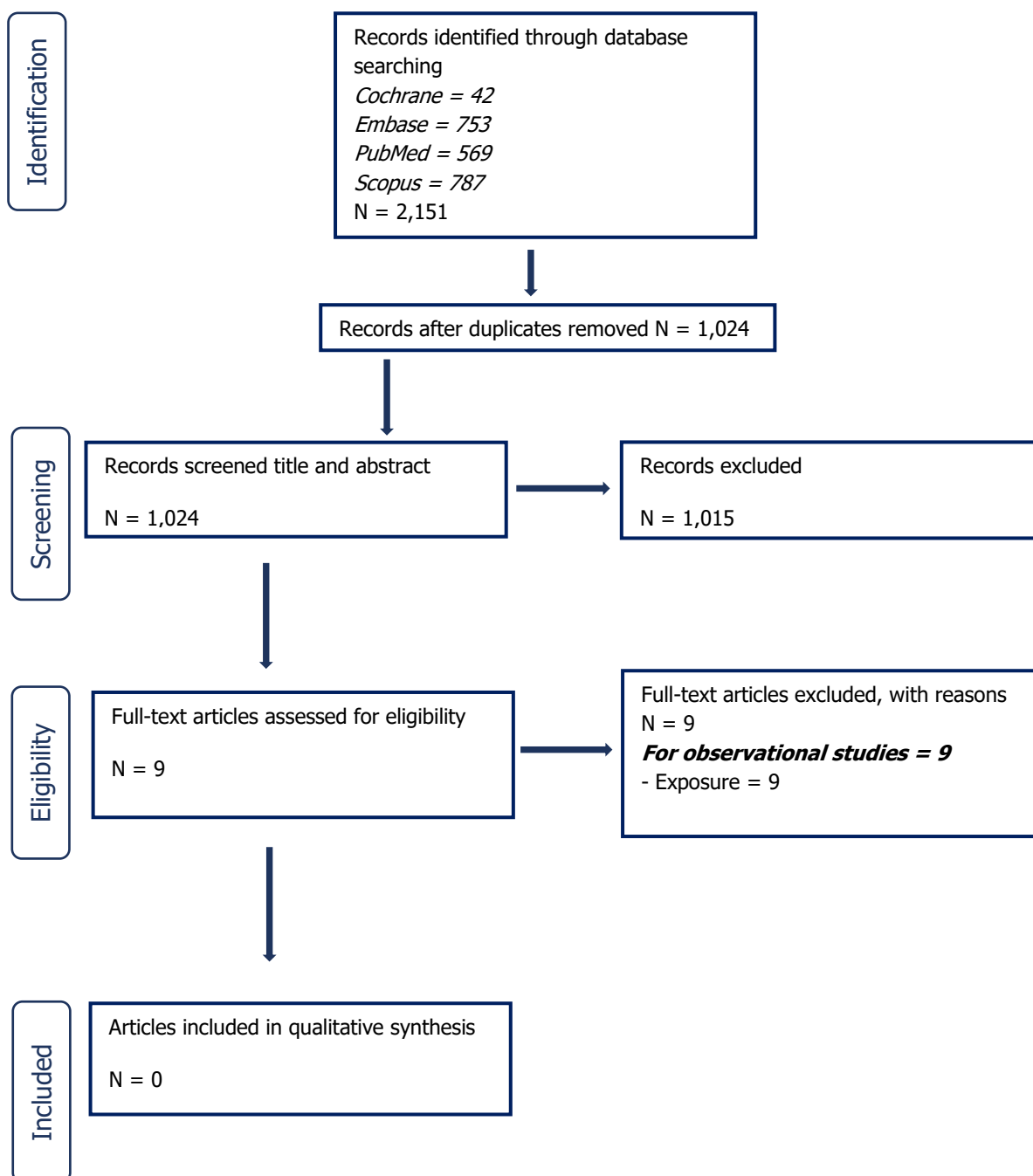


## Appendix B – Flow charts for the selection of studies in the updated literature search

### B.1. Flow chart for the selection of studies on metabolic diseases.



## B.2. Flow chart for the selection of studies on dental caries



## Appendix C – Characteristics and results of intervention studies

Author, Year, Country, Funding	Participants, sex, age	D/D	Arms <sup>1</sup>	Sugar dose (E%) <sup>2</sup> ; food form	Body fatness	Ectopic fat deposition	Glucose homeostasis	Blood pressure	Blood lipids	Uric acid	Comments
<b>Hypercaloric<sup>3</sup></b>											
Higgins and Mattes (2019) USA Unclear funding	30(15F) 28(10F) 29(12F) 28(12F) 39(18F)  OW/OB Range: 18-60y	P, 12	c1:Aspartame c2:RebA c3:Saccharine c4:Sucralose i:Sucrose (100-140g)	0 0 0 0 ~25  Beverages	Bw (i vs c1, c2 and c4), FM (i vs c4) <b>NSD:</b> FFM, BMI		<b>NSD:</b> FG, FI, HbA1c, glucose and insulin response on OGTT		<b>NSD:</b> T-c, LDL-c, HDL-c, TG		Changes in body weight were significantly different among the groups (treatment-by-time effect, P = 0.01). Body weight significantly increased in sucrose vs all sweeteners except saccharin. No significant differences between groups in changes in blood lipids or measures of glucose homeostasis.
<b>Isocaloric, neutral energy balance<sup>4</sup></b>											
Meng et al. (2018) USA Public funding	11(7F)  BMI<35 kg/m <sup>2</sup> Range: 50-80y	CX, 4.5	i1:Simple CHO i2:Refined complex CHO i3: Unrefined complex CHO	~34 ~25 ~23  <u>Total sugars</u>  Mixed Diet	<b>NSD:</b> Bw		<b>NSD:</b> FI, FG, HOMA-IR, HbA1c		↑ T-c, LDL-c, T-c/HDL-c ratio, LDL-c/HDL-c ratio (i2 vs i1 and i3)  <b>NSD:</b> HDL-c, VLDL-c, and TG		There were greater increases in T-c and LDL-c in the refined CHO arm compared with the simple CHO and unrefined arms. No difference between the arms for HDL-c, TG, VLDL-c, body weight or glucose homeostasis measures at the end of the follow-up.
<b>Ad Libitum</b>											

<sup>1</sup> In parenthesis, amount of sugars in g/d, either provided in the publication or calculated from the amount consumed from a given source (e.g. honey, SSB).

<sup>2</sup> Refers to the sugars contribution of the dietary fraction manipulated in the study to total energy intake.

<sup>3</sup> Only sugar arm in positive energy balance (vs artificial sweeteners in neutral energy balance)

<sup>4</sup> All arms in neutral energy balance.

Author, Year, Country, Funding	Participants, sex, age	D/D	Arms <sup>1</sup>	Sugar dose (E%) <sup>2</sup> ; food form	Body fatness	Ectopic fat deposition	Glucose homeostasis	Blood pressure	Blood lipids	Uric acid	Comments
Ebbeling et al. (2020)  USA  Mixed funding	67(27F) 67(27F) 69(28F)  BMI<40kg/m <sup>2</sup> Range: 18-40y	P, 52	c:SSB i1:ASB i2:USB	10 0 0  Beverages	<b>NSD:</b> Bw, FM		<b>NSD:</b> FG, FI, HOMA-IR, HOMA-β	<b>NSD:</b> SBP, DBP	<b>NSD:</b> TG, HDL-c, LDL-c, TG/HDL-c ratio	<b>NSD:</b> UA	Replacing SSBs with calorie free beverages did not affect changes in body weight, fat mass, blood lipids, blood pressure, uric acid or measures of glucose homeostasis. Among those with central obesity, weight gain was highest in those consuming SSBs.
Rashid et al. (2019)  Malaysia  Public funding	30(13F) 30(17F)  IFG 52.8±10.4y 50.4±12.5y	P, 4	i:Honey (30g) c:No honey	~5 0  Foods	<b>NSD:</b> BMI		<b>NSD:</b> FG	<b>NSD:</b> SBP, DBP	<b>NSD:</b> T-c, HDL-c, LDL-c, TG		There was no significant difference between the intervention and control arm for any of the measured endpoints at the end of the 30-day intervention.
Yoshizane et al. (2020)  Japan  Private funding	25(10F) 25(10F)  GP 43.7±8.4y	P, 12	i1:Trehalose(3.3g) c:Sucrose(3.3g)	~1 ~1  Foods	<b>NSD:</b> Bw, BMI, BF, FFM		<b>NSD:</b> FG, FI, insulin after 2-h of OGTT, 2-h glucose during OGTT, HOMA-IR, HOMA-β, HbA1c	<b>NSD:</b> SBP, DBP	<b>NSD:</b> T-c, HDL-c, LDL-c, TG		Changes in body composition, blood lipids, blood pressure and measures of glucose homeostasis were not significantly different between groups.

Results presented in *italics* were not eligible as the studies did not meet the duration criteria outlined in the opinion protocol.

ASB = artificially sweetened beverages; BF=body fatness; BL= blood lipids; BP = blood pressure; BMI= body mass index; Bw= body weight; CHO = carbohydrates; C= control; CX=cross-over; DBP= diastolic blood pressure; D/D = study design and duration (in weeks); F= females; FG = fasting glucose; FI = fasting insulin; FM= fat mass; FFM= fat free mass; GH=glucose homeostasis; GP = general population; HbA1c= Glycated haemoglobin; HDL-c= High density lipoprotein cholesterol; HOMA = homeostatic model assessment; I: intervention group; IFG= impaired fasting glucose; IR= insulin resistance; LDL-c= low density lipoprotein cholesterol; M=males; NSD= no significant difference; OB=obese; P=parallel; RebA = rebaudioside A; SSB = sugar-sweetened beverages; T-c= total cholesterol; TG= triglycerides; UA= uric acid, USB= Unsweetened beverages, VLDL-c= Very low density lipoprotein cholesterol.

## Appendix D – Observational studies reporting on exposure-endpoint relationships classified by lines of evidence for hazard identification

	Total sugars	Added and/or free sugars <sup>1</sup>	Fructose	SSBs	FJs
<b>Endpoints in standalone (main) LoEs</b>					
Incidence of obesity	-	-	-	GUSTO (Quah et al., 2019) WAPCS (Zheng et al., 2019)	-
Incidence of T2DM	-	-	-	HPFS, NHS, NHS II (Drouin-Chartier et al., 2019) CARDIA (Hirahatake et al., 2019) MTC (Stern et al., 2019)	EPIC-NL (Scheffers et al., 2020) HPFS, NHS, NHS II (Drouin-Chartier et al., 2019)
Incidence of CVDs <sup>2</sup>	UK Biobank (Ho et al., 2020) EPIC-Multicentre (Sieri et al., 2020) Takayama (Nagata et al., 2019)	MDCS ((Kulezic et al., 2019);(Ramne et al., 2019)) Takayama (Nagata et al., 2019)	Takayama (Nagata et al., 2019)	HPP (Keller et al., 2020) HPFS, NHS (Malik et al., 2019) EPIC-Multicentre (Mullee et al., 2019) REGARDS (Collin et al., 2019) CTS (Pacheco et al., 2020)	EPIC-NL (Scheffers et al., 2019) REGARDS (Collin et al., 2019)
Incidence of dyslipidemia	-	-	-	Framingham-Offspring, Framingham-3Gen (Haslam et al., 2020)	Framingham-Offspring, Framingham-3Gen (Haslam et al., 2020)
<b>Endpoints in standalone (surrogate) LoEs</b>					
Obesity-related endpoints <sup>3</sup>	Takayama (Yamakawa et al., 2020) Generation R (Nguyen et al., 2020)	Takayama (Yamakawa et al., 2020) CARDIA (Yi et al., 2020) EPITeen (Marinho et al., 2020)	Takayama (Yamakawa et al., 2020)	CARDIA (Yi et al., 2020) HWCS (González-Morales et al., 2020) PREDIMED (Konieczna et al., 2019) IFS (Marshall et al., 2019) STOP-SA (Okop et al., 2019) GUSTO (Quah et al., 2019) WAPCS (Zheng et al., 2019)	IFS (Marshall et al., 2019) FCS (Wan et al., 2020)



T2DM-glucose tolerance	-	-	-	Mullie et al. (2017) HWCS (Rivera-Paredes et al., 2020)	-
Blood lipids	Generation R (Nguyen et al., 2020)	-	-	Framingham-Offspring, Framingham-3Gen (Haslam et al., 2020)	Framingham-Offspring, Framingham-3Gen (Haslam et al., 2020)
<b>Endpoints in complementary LoEs</b>					
Body fat	Generation R (Nguyen et al., 2020)	-	-	GUSTO (Quah et al., 2019)	-
VAT/SAT	-	CARDIA (Yi et al., 2020)	-	CARDIA (Yi et al., 2020)	-
T2DM-related endpoints	-	EPITeen (Marinho et al., 2020)	-	HWCS (Rivera-Paredes et al., 2020)	-
Hyperuricaemia	-	HANDLS (Beydoun et al., 2018)	-	-	-
<b>Pregnancy endpoints</b>					
Birth weight	Brei et al. (2018)	GeliS (Günther et al., 2019)	-	GeliS (Günther et al., 2019)	-

**Footnote to Appendix D.** <sup>1</sup> Includes sucrose. If the same study reports on several of these exposures for the same endpoint, the reference appears only once; <sup>2</sup> Includes CVD, CHD, stroke, or any combination of these (incidence or mortality). If the same study reports on several of these endpoints for the same exposure, the reference appears only once

<sup>3</sup> Includes BW, BMI, WC or any combination of these

## Glossary and/or abbreviations and/or acronyms

24-h DR	24-hour dietary recall
Added sugars	Mono- and disaccharides added to foods as ingredients during processing or preparation at home, and sugars eaten separately or added to foods at the table
ASBs	Artificially sweetened beverages
BMI	Body mass index
BoE	Body of evidence
CARDIA	Coronary Artery Risk Development in Young Adults
CHD	Coronary heart disease
CI	Confidence interval
COSM	Cohort of Swedish Men
CTS	California Teachers Study
CVD	Cardiovascular disease
DBP	Diastolic blood pressure
EFSA	European Food Safety Authority
EPIC-Morgen	European Prospective Investigation into Cancer and Nutrition-Morgen cohort
EPIC-NL	European Prospective Investigation into Cancer and Nutrition-the Netherlands cohort
EPICOR	European Prospective Investigation into Cancer and Nutrition-Italian cohort
EPIC-Utrecht	European Prospective Investigation into Cancer and Nutrition-Utrecht cohort
EPITEEN	Epidemiological Health Investigation of Teenagers in Porto Study
FCS	Framingham Children's Study
FJ	Fruit juice
Framingham-3Gen	Framingham third generation cohort
Framingham Offspring	Framingham offspring cohort
Free sugars	Added sugars plus sugars naturally present in honey, syrups, fruit juices and juice concentrates
GeliS	Healthy living in pregnancy study
Generation R	Generation R Study
GUSTO	Growing Up in Singapore Towards healthy Outcomes Study
HANDLS	Healthy Aging in Neighborhoods of Diversity Across the Life Span
HBW	High birth weight
HDL	High-density lipoprotein
HOMA	Homeostatic model assessment
HPFS	Health Professionals Follow-up study

HPP	Harvard Pooling Project of Diet and Coronary Disease
HR	Hazard ratio
HTN	Hypertension
HWCS	Health Workers Cohort Study
IFS	Iowa Fluoride Study
IR	Insulin resistance
IQR	Interquartile range
JPHC	Japan Public Health centre-based Study Cohort
LBW	Low birth weight
LDL	Low-density lipoprotein
LGA	Large-for-gestational age
LoE	Line of Evidence
MDCS	Malmo Diet Cancer Study
MoBa	Norwegian Mother and Child Cohort Study
Mr and Ms Os	Mr and Ms Os of Hong Kong
MTC	Mexican Teachers' Cohort
NAFLD	Non-alcoholic fatty liver disease
NASH	Non-alcoholic steatohepatitis
NDA Panel	EFSA Panel on Nutrition, Novel Foods and Food Allergens
NHS	Nurses Health Study
NHS II	Nurses Health Study II
NIH-AARP	National Institutes of Health-American Association for Retired Persons Diet and Health Study
NTP	National Toxicology Programme
OGTT	Oral glucose tolerance test
OHAT	Office of Health Assessment and Translation
PAD	Peripheral artery disease
PCs	Prospective cohort studies
PREDIMED	Prevención con Dieta Mediterránea study
RCTs	Randomised controlled trials
REGARDS	Reasons for Geographic and Racial Differences in Stroke study
RoB	Risk of bias
RR	Relative risk
SAT	Subcutaneous adipose tissue
SBP	Systolic blood pressure
SDS	SD-scores
SGA	Small-for-gestational age
sQ	Subquestion
SSBs	Sugar-sweetened beverages

STOP-SA	Slow, Stop or Stem the tide of Obesity in the People of South Africa Study
T2DM	Type 2 diabetes mellitus
TEI	Total energy intake
TG	Triglyceride
TLGS	Teheran Lipid and Glucose Study
Total sugars	All mono- and disaccharides found in mixed diets i.e. glucose, fructose, sucrose, galactose, lactose, trehalose and maltose
UA	Uncertainty analysis
VAT	Visceral adipose tissue
WAPCS	Western Australia Pregnancy Cohort (Reine) Study
WC	Waist circumference